

Soil Conservation Service In Cooperation with
United States
Department of Agriculture
Forest Service
United States Department
of the Interior
Bureau of Land Management
and
Bureau of Indian Affairs
and the
University of Nevada
Agricultural
Experiment Station

Soil Survey of Lyon County Area, Nevada

How To Use This Soil Survey

General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

Detailed Soil Maps

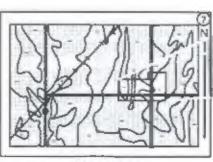
The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

To find information about your area of interest, tocate that area on the Index to Map Sheets, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.

1) 2 3 4 6 N 5 10 8 0 0 0 12 13 74 5 16 17 48 19 30 NDEX TO MAP SHEETS



Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the Index to Map Units (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



AREA OF INTEREST NOTE: Map unit symbols in a soil

BaC

survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

WaF

A5B

MAP SHEET

The Summary of Tables shows which table has data on a specific land use for each detailed soil map unit. See Contents for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1968-79. Soil names and descriptions were approved in 1981. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1980. This survey was made cooperatively by the Soil Conservation Service, the Bureau of Land Management, the Bureau of Indian Affairs, the Forest Service, and the University of Nevada Agricultural Experiment Station. It is part of the technical assistance furnished to the Smith Valley and Mason Valley Soil Conservation Districts.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping if enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Foreword

This soil survey contains information that can be used in land-planning programs in your young area. As yada, it inclais plantictions of solibehavior for selected and uses. The survey also highlights limitations and hazards inherent in the solimprovements needed povercome the inclaitons and he impact of selected land uses on the environment.

This son survey is designed for many different users. Farmers, ranchers thresters and agronomists had use if the evaluate the potential of the solution the management needed for maximum foot and the production Planners commently officials are selected developers by this and home highest can use the survey to plan and is selectiones for forst usual and dentity special practices needed to insure for partiply formance. Conservationists togethers students and specialists in a student what to management waster sposs and politic control can use the survey to help them undetstand protroit and enhance the environment.

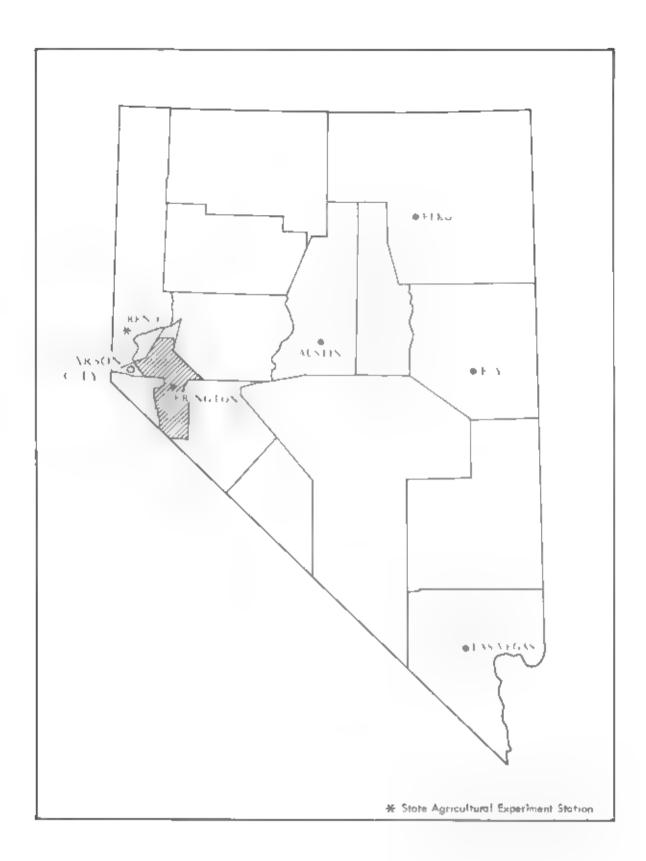
Great differences in soll property signs occur within short distances. Some soll seasonally wet or silb rectiful too dray. Some are sharp with production for buildings or roads. Some are too unstable to be used as a foundation for buildings or roads. Clayey or well silb sare poorly suited to bas ments in underground installations.

These and many other soll properties that affect and use are described in this soil's rivey identification of soils are shown on the general soll map. The local or of each soil's shown on the detailed soll maps back so in the survey area is tescribed. Ho mation on specific uses is given or each soil. He pith using this publication, and at thorat informs on are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Gerald C. Thora

State Conservationist

Son Conservation Service



Soil Survey of Lyon County Area, Nevada

By Warren M. Archer, Soil Conservation Service

Freidwork by Warren M. Archer, Joseph H. DuRosseau, and James A. Mitchell, Soil Conservation Service.

United States Department of Agriculture. So: Conservation Service in cooperation with United States Department of Agriculture, Forest Service, United States Department of the Interior, Bureau of Land Management and Bureau of Indian Affairs, and the University of Nevada Agricultural Experiment Station.

LYON COUNTY AREA includes all of Lyon County except the extreme northern part. The survey area is in west-central Nevada, it has a total area of approximately 1,925 square miles. The survey area is bordered on the west by Storay and Douglas Counties and Carson City, on the south by Mineral and Mono Counties, on the east by Churchill and Mineral Counties, and on the north by Washoe and Churchill Counties.

Verington, the county seat, is approximately 35 miles southeast of Carson City, the state capital, and about 80 miles southeast of Reno. The elevation is 4 357 feet. Other population centers in the area include Smith, We ington, Silver Springs, Silver City, Mason, and Dayton. The total population of Lyon County was 13,677 in 1980, according to preliminary figures of the U.S Census Bureau.

Important physiographic units in the area include the Pine Grove Hills, Pine Nut, Sweetwater, and Desert Mountains, Singatse and Wassuk Ranges, the Walker Piver Basin, including Smith and Mason Valleys; and the Carson River Basin. The highest point in the area, about 10,500 feet, is in the Sweetwater Mountains.

Descriptions, names, and demeations of soils in this soil survey do not fully agree with those on soil maps for adjacent counties. Differences are the result of better knowledge of soils, modifications in series concepts, intensity of mapping, or the extent of soils within the survey.

General Nature of the Survey Area

By John C. Scholling, district conservationist, Solf Conservation Service

This section briefly discussed the history industries and transportation, water supply, drainage, geology and climate of the survey area.

History

Lyon County, one of the original territorial counties, was established November 25, 1861. It was named after General Nathaniel Lyon. The economy of the county has been based on mining and agriculture.

Originally the county seat was Dayton, which is in the northwestern part of the county. It was moved to Yetington in 1911 when a fire destroyed the courthouse. Yenington at one time was called "Pizen Switch," a name coined by local cowboys. N. H. A. Mason, for whom the community of Mason and Mason Valley for grazing in 1854 white driving cattle to California. Gold was discovered in the survey area by David Wilson Sneider Angus McLeod for a time ran a four-horse stage from Pine Grove through Mason Valley to Virginia City.

The town of Wabuska was established in 1880 at the same time as the narrow gauge Carson and Colorado Railroad. This railroad was taken over by the Southern Pacific Company.

The county's first newspaper, The Mason Valley Tidings, was published by Mr. Sayers in 1880. Later it was soid to Charles Patterson, who changed the name to The Yerington Rustier.

Industries and Transportation

Mason Valley has supported a number of manufacturing interests. A flour mill was erected at the early-day Wilson Ranch, near Nordyke. Later a feed and grain mill was constructed. A creamery was built in 1893, and several years later an ice plant was established. During this period stores and casinos flourished.

Lyon County is noted for its extensive agricultural production centered in Smith and Mason Valleys and along the Carson River east of Dayton. Beef cattle are raised along the East Walker River on 33,000 acres of private pasture, mostly in Smith and Mason Valleys, and on 585,000 acres of the Bureau of Land Management and, throughout the county

The main crop is alfaifa, a large portion of which is marketed out of state. Other crops of major importance noude barley, wheat, oats, and specialty crops of

potatoes, onions, and gar ic.

Mining has had an important part in the industrial growth of the county. One of the state's larger mining operations, the Anaconda Copper open pit and mill, I ourished northwest of Yerington until the late 1970's, when the thickness of the overburden and the availability of mostly low-grade one forced its closure. Several mining districts are located within the county.

Interest in geothermal energy for industry is increasing.

The county's first gasono plant is at Wabuska.

A good road system serves Lyon County U.S interstate 80 crosses the north end of the county and provides access to Ferniey and to U.S. Highway 95A, which is the main route between Reno and Las Vegas. U.S. Highway 50 crosses the county through the Dayton-Silver Springs area providing an alternate east-west route across the state. Various state routes have also been constructed.

The county has approximately 56 miles of the Southern Pacific Railroad spur line, which extends from the main line at Hazen through Wabuska and east to Mineral County. The station at Wabuska handles shipments of mineral and agricultural products.

Four registered airstrips are located in the county, the principle one being the paved 3,920-foot strip owned by the City of Yerington. It is located at the north end of town and is the only airport maintaining any facilities. There is no scheduled flight service into Lyon County. Passenger and airfreight service is available at Reno.

Several public carners serve the county. The Las Vegas Tonopah-Reno Stage lines have daily arrivals and departures. At reast two truck carners provide overnight service to Reno, Las Vegas, San Francisco, and Los Angeles. United Parcel Service also serves the county.

Water Supply

The major sources of impation water in the survey area are the East Fork and West Fork of the Walker. River and the Carson River. These are supplemented by impation wells used mostly as a backup source in years of drought. There are no upstream storage facilities on the Carson River in 1919 land acquisition and the construction of Topaz and Bridgeport Reservoirs on the West Fork and East Fork of the Walker Biver began. Topaz Reservoir, on the west fork, was finished first Storage of 45,000 acre-feet of water was started in January 1922, and its capacity increased to 59,440 acrefeet in 1937. Bridgeport Reservoir, on the East Fork. began storing 42,460 acre-feet of water in December 1924 Irrigation water diverted from the Walker and Carson Rivers is dependent on runoff from the Sierra. Nevada Mountains and varies widely from year to year

The Walker River Impation District was organized in April 1919 to improve impation operations on the river. This district is responsible for water rights on approximately 79 000 acres in the survey area. Diverted river water is distributed to individual users by a complex system of 25 dilches throughout Mason and Smith Valleys.

Drainage

The southern half of the survey area is drained mainly by the Walker River, and the northern half is drained by the Carson River. The headwaters of the Walker River. are in the Sierra Nevada of California. The river flows north and east into Nevada, passes through Smith and Mason Valleys, turns east and south in a circular fashion through Schurz in Mineral County, and terminates in Walker Lake. Runoff from the east-facing slopes of the Sierra Nevada flows into the Carson River. The river flows east and north through Carson Vacey and then turns east again near Carson City to flow through Dayton and the northern part of Lyon County and on to Laborian Reservoir This river terminates in the Carson Sink Some other smaller drainageways are Bodie and Rough Creeks on the east fork of the Walker River, Desert Creek on the west fork of the Walker River, and El Dorado Canyon on the Carson River

Geology

Lyon County lies entirely within the borders of the Cretaceous Sierra Nevada Batholith. The soils forming in material derived from the granitic rock of this batholith are typified by those in the Berit, Chill and Uripnes series. The pre-Cretaceous rocks are Triassic and Jurassic in age and are dominantly metamorphic volcanic rocks consisting mainly of andesite and occurring as roof pendants in the batholith.

Overlying the granitic and metamorphic rocks is an extensive sequence of Cenezoic voicanic and interbedded sed mentary rocks. In general, this sequence neededs rhyo tic tuff considered to be Miocene in age overlain by Miocene and Pliocene andesite and dacite and thick sequences of intercalated lacustime and fluviative sediments. Theori, Singatse, Hyloc, and Ister soils are representative of soils that formed in material derived from andesite, dacite, and rhyolitic tuff. Vylach, Celeton, Ravenesis, and Haar are soils that formed in sed mentary rock.

The latest general period of volcanic activity extruded basaltic flows in which Lapon and Pirouette soils have

developed.

Pleistocene lacustrine deposits are in the Carson Plains-Silver Springs area and in Smith Valley Wedertz, Rusty, and Hough so is formed in these deposits.

Climate

Prepared by the Netional Climatic Center, Asheville, North Carolina

in Lyon County summers are hot, expecially at the ower elevations and winters are cold. Precipitation normally is low at the lower elevations throughout the year. At the higher elevations, precipitation is much higher and show accumulates to considerable depths.

Table 1 gives data on temperature and precipitation for the survey area, as recorded for the period 1851-1975, at Topaz Lake southwest of the county; at Yerington, in the county and at Lahontan Dam, on the northeast border of the county. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 34 degrees F in the southern part of the county and 36 degrees in the northeastern part. The average daily minimum temperature is 19 degrees in the southern part and 25 degrees in the northeastern part. The lowest temperature on record. -17 degrees, occurred at Topaz Lake on January 23 962. In summer the average temperature varies from 67 degrees in the southern part of the county to 74 degrees in Lahontan Dam. The highest temperature, 106 degrees, was recorded at Lahontan Dam (elevation 4,158 feet) on July 20, 1960.

Growing degree days, shown in table 1, are equivalent to 'heat an ts.' Beginning in spring, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fail.

Of the total annual precipitation, 3 inches, or 40 percent, usually falls during April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 2 inches. The heaviest 1-day rainfall during the period of record was 2.35 inches at Topaz Lake on

February 2, 1963. Thunderstorms occur on about 13 days each year, of which 9 occur in summer

Average seasonal snowfall is 10 inches. The greatest snow depth at any one time during the period of record was 10 inches at Topaz Lake. On the average of 2 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midaffernoon is about 30 percent. Humidity is higher at night, and the average at dawn is about 55 percent. The percentage of possible sunshine is 90 percent in summer and 70 percent in winter. The prevailing wind is from the west-northwest Average windspeed is highest, 8 miles per hour, in April

Every few years a blizzard strikes the survey area with high winds and much drifting snow. Even at the lower elevations, snow remains on the ground for many weeks after a blizzard and livestock suffer.

How this Survey was Made

Soil scientists made this survey to provide information about the soils in the survey area, where they are and how they will behave for specified and uses. Before going into the area, the soil scientists reviewed the available literature on the chimate, geology, landforms, drainage patterns, and biological activity in the area.

In the initial stages of the survey a preview of the survey was made. During this time, the so scientists and specialists examined the soils and studied their relationship to the vegetalion, geology and landforms of the survey area.

The soil scientists dug pits to study the soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by natural weathening processes or plant roots. The soil scientists recorded the characteristics of the profiles they studied and compared the profiles with representative profiles of known soils in nearby counties and in more distant places. They then classified and named the soils in the survey area.

The soil scientists analyzed the relationship between the observed soil properties, the landforms and the native plants in the area. After studying this relationship, the soil scientists can predict with considerable accuracy the kinds of soil on the landscape

The soil scientists drew boundaries of the soils on aerial photographs. These photographs show wood and, buildings, roads, and other details that help in drawing accurate boundaries. The soil maps at the back of the publication were prepared from aerial photographs.

While a soil survey is in progress, samples of some of the soils are collected for laboratory analyses and engineering tests. All the soils are field tested to determine their characteristics, interpretations of the characteristics are made during the survey process, and the soi is assigned to a taxonomic class. Data are assembled from other sources, such as test results, recorded field experiences, and State and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of so.

The areas shown on a soil map are called map units. The design of each map unit is based on the actual or intended use and management of the area. Where the present or intended land use is an intensive one, such as cropland or urban development, the map units often consist of one kind of dominant soil. Each delineation is defined, and the so is identified and ventied, at closely spaced intervals. This identification and verification is usually done by examining many small holes. If the intended and use is a less intensive one, such as low productivity rangeland, wildlife habitat, or watershed, the map units often consist of two or three different kinds of major soils or misce taneous areas. The soils in each map unit are identified by traversing the area, making transects, and studying the soil-landscape relationship Once the map units have been identified, other delineations can be defined based on interpretations of aerial photographs and on other observations.

Each map unit is made up of the soil or soils for which tis named plus a small proportion of soils that belong to other taxonomic classes and miscellaneous areas. Some

areas of differing soils are called noncontrasting included soils. These soils have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and their presence does not affect use and management. Also within the delineated areas are contrasting included soils or miscellaneous areas that have properties and behavior divergent enough to require different use or management. These contrasting included areas are small and are listed in the map unit description.

The presence of noncontrasting or contrasting included areas in a map unit in no way diminishes the usefulness or accuracy of the soil survey. The objective of soil mapping is not to delineate pure taxonomic classes of soils, but to separate the landscape into units that have similar use and management requirements. The approximation of such units on the map provides sufficient information to allow the development of resource plans, but onsite investigation is needed to plan for specific uses.

Only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, range and and woodland managers, engineers, planners, developers and builders, home buyers, and others.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor so is lit is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general sor map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth drainage, and other characteristics that affect management.

The 15 map units in this survey area have been grouped into four general kinds of landscape for broad interpretive purposes. Each of the broad groups and the map units in each group are described in the following pages.

Areas Dominated by Soils on Valley Fill Plains

This group consists of four map units. The soils in this group dominantly are on alluvial flats, take plains, take terraces, stream terraces, and flood plains. Elevation is 4,200 to 5,200 feet. The average annual precipitation is 4 to 8 noties, the average annual air temperature is 48 to 51 degrees F, and the frost-free season is about 100 to 120 days.

These soils are nearly level to moderately steep and are shallow and very deep. They are fine textured to coarse textured throughout the profile.

Many of the soils in this group have a seasonal high water table and are subject to flooding. Some of the soils have altered drainage, and others are well drained and somewhat excessively drained. The content of salt and alkali in the soils is highly variable.

1. Lahontan-Ortzaba-Wabuska

Nearly level, very deep, somewhat poorly drained soils, on lake plains and alluvial flats

This map unit makes up about 4 percent of the survey area. It is in the lower parts of the Smith, Mason, and Churchill Valleys. The vegetation is mainly sparse stands of black greasewood, inland saltgrass, a.ka. sacaton, and other salt- and alkali-tolerant plants.

The Lahontan soils are on old lake prains. These so is dominantly are stratified and medium textured to fine textured throughout the profile. They are affected by sait and alkali. These soils are subject to rare periods of flooding. Some areas have altered drainage because of the lowering of basin lakes.

The Orizaba soils are on accival flats and oid take plains. These soils dominantly are stratified and moderately fine textured to coarse textured throughout the profile. They are strongly affected by sait and a kali. These soils are subject to rare pends of flooding

The Wabuska soils are on allowal flats. These soils dominantly are stratified and medium textured to coarse textured throughout the profile. Most of these soils are slightly to strongly affected by sait and alkali. These soils are subject to rare periods of flooding.

Of minor extent in this unit are moderately fine textured Dalzell soils, fine textured Parran and Ultra soils, and Playas. The Dalzell soils are on lake terraces and support Indian neegrass and shadscale. The Parran and Ultra soils are on take plains.

This unit is used for livestock grazing and range and wildlife habitat. The main limitations are the content of salt and alkali in the soils and the low average annual precipitation.

Dithod-East Fork-Fallon

Nearly level, very deep, somewhat poorly drained soils, on alluvial flats, flood plains, and low stream terraces

This map unit makes up about 6 percent of the survey area. It is in the low areas of Smith and Mason Valleys and along the Carson River Vegetation is mainly basin wildrye, western wheatgrass, and basin big sagebrush in areas not affected by salt and aikali and inland saltgrass, alkali sacaton, and black greasewood in areas affected by salt and alkali.

The Dithod soils are on alluvia, flats, flood plains, and low stream terraces. These soils dominantly are stratified and moderately fine textured to coarse textured throughout the profile. They have a dark colored surface layer. In some places they are salt- and alkali-affected.

Most areas are artificially drained. Some areas are

subject to rare periods of flooding

The East Fork sons are on all uviat flats, flood plains, and low stream-cut terraces. These soils dominantly are moderately fine textured and have a dark colored surface layer. In some places they are salt- and alkali-affected. Most areas of these soils are artificially drained. Some areas are subject to rare or occasional periods of flooding.

The Fallon soils are on low stream terraces. These soils dominantly are stratified and medium textured to coarse textured throughout the profile. They have a light colored surface layer. These soils have been artificially drained in most areas. Most areas are subject to rare or frequent periods of flooding. Small areas are salt- and

alkali-affected.

Of minor extent in this unit are Appian, Fernley, Obenion Rose Creek, and Sagouspe soils. The Appian soils are well drained and on intermediate take terraces. The Fernley and Sagouspe soils are on low stream terraces and flood plains and are coarse textured throughout the profile. The Obenion soils are very poorly drained and on alluvial flats. The Rose Creek soils are on flood prains and are poorly drained. All the soils except the Appian soils are subject to rare penods of flooding. The Appian soils support black greasewood and big sagebrush.

This unit is used mainly as irrigated cropland and pasture and and for homesite development and wetland

wild! fe habitat

The main limitations for wetland wildlife habitat are some areas that have a high content of salt and alkali and a lack of available water in some areas.

The main limitation for irrigated crops and pasture is the high water table of the Dithod soil. Some areas of the East Fork and Falion soils are limited by the hazard of flooding. The Fallon soils are also limited by a low available water capacity and the hazard of soil blowing. It some areas the content of salt and alkali is also a mitation.

This unit is poorly suited to homesite development. The main imitations are the high water table and the hazard of flooding.

3. Saralegul-Wedertz-Wellington

Nearly level to strongly sloping, shallow and very deep, well drained soils, on alluvial fans and lake terraces

This map unit makes up about 4 percent of the survey area. It is in Smith Valley. The vegetation is mainly Wyoming big sagebrush, Indian neegrass, and bottlebrush squirreitail.

The very deep Saralegui soils are on nearly level to moderately sloping alluvial fans and lake terraces. These soils have a dominantly coarse textured surface layer and a moderately coarse textured subsoil and substratum.

The very deep Wedertz soils are on nearly level to strongly sloping old take terrace remnants. These soils have a dominantly coarse textured surface layer and a moderately fine textured subsoil over a discontinuous cemented hardpan.

The shallow Wellington soils are on nearly evel to strongly sloping old high lake terrace remnants. These soils have a dominantly coarse textured surface layer and a moderately fine textured subsoil over an indurated

hardpan

Of minor extent in this unit are Saralegul Variant soils. They dominantly have a moderately coarse textured subsoil and a stratified and coarse textured to moderately fine textured substratum.

This unit is used for livestock grazing, rangeland wildlife habitat, and homesite development and as

imgated cropiand and pastureland

The main limitation of this unit for livestock grazing and rangeland wildlife habitat is the low average annual precipitation. The Saraiegui and Wedertz soils are also limited by the coarse surface texture, and the Wellington soils are limited by a very low available water capacity.

The main limitations for irrigated cropland are the low available water capacity of the surface layer of the Saralegui soils, the hazard of soil blowing on the Saralegui and Wedertz soils, and a shallow depth to an indurated hardpan in the Wellington soils. Steepness of slope also limits the Wedertz and Wellington soils for this use.

This unit is moderately suited to homesite development. The main limitations are the highly expansive clay in the Wedertz soils, the hardpan in the Wellington soils, and the instability of excavations and inadequate filtration of septic tank effluent in the Saralegul soils. Steepness of slope limits all soils in some areas

4. Patna-Hough-Rusty

Nearly level to moderately steep, very deep, well drained and somewhat excessively drained soils; on dunes, high lake terraces, and lake plains

This map unit makes up about 2 percent of the survey area. It is mainly in Churchill Valley, in the north-central part of the area. The vegetation is mainly Indian incegrass, fourwing saltbush, and shadscale.

The Patna soils are nearly level to moderately steep and are somewhat excessively drained. They are on dunes and lake plains. These soils have a dominantly coarse textured surface layer, moderately coarse textured subsoil, and coarse textured substratum. They are in areas subject to eclian deposition.

The Hough soils are nearly level and well drained. They are on take plains and take terraces. These soils have a dominantly coarse textured surface layer, moderately fine textured subsoil, and coarse textured substratum.

The Rusty sorts are nearly level and well drained. They are on take plains. These soils dominantly have a coarse textured surface layer and a medium or moderately fine textured subsoil over stratified coarse to medium textured lake sed ment. They are on the higher parts of lake plains.

Of minor extent in the unit are Bango, Hawsley, and soide soils. Bango soils are on take terraces and have a medium or moderately fine textured subsoil that is alkalitaffected. Hawsley soils are on take terraces, and Isolde soils are on dunes superimposed over take terraces. They are coarse textured throughout the profile

This unit is used mainly for livestock grazing, range and wild fe habitat, and homesite development. Some small areas are used as irrigated cropiand and pastureland.

The main limitation of this unit for tivestock grazing and range and wildlife habitat is the low average annual precipitation.

The main limitations of this unit for irrigated crops and pasture is a rapid infiltration rate and low available water capacity of the surface layer. The Hough and Rusty soils are also mitted by the hazard of soil blowing.

This unit is moderately suited to homesite development. The main limitation is the instability of excavations. The Patha and Hough soils may have nadequate filtration capacity for septic tank effluent

Areas Dominated by Soils on Alluvial Fans and Terraces

This group consists of four map units. The soils in this group are on allowed fans and stream terraces above flood plains and lake plains and below foothills and mountains. Elevation is 4,300 to 7,600 feet. The average annual precipitation is 4 to 12 inches, the average annual temperature is 47 to 52 degrees F, and the frost-free season is 90 to 130 days.

The soils in this group are well drained and nearly level to strongly sloping. Most of the soils are very deep, but some are shallow or moderately deep over a hardpan. The soils are fine textured to coarse textured. Some of the soils have a silical cementation, and many have an increase of clay in the subsoil.

5. Malpais-Yerington-Pizene

Nearly level to strongly sloping, very deep, well drained soils, on alluvial fans and stream terraces

This map unit makes up about 12 percent of the survey area. It is on a avial fans and terraces below hills and mountains in the northeastern part of the area. The vegetation is mainly shadscale. Bailey greasewood, and indian ricegrass.

The Malpais soils are gently sloping to strongly sloping. They are on alluvial fans. These soils are dominantly very gravelly, very cobbly, or very stony and moderately coarse textured throughout the profile

The Yenngton soils are nearly level to strongly sloping. They are on wind-worked alluvial fans. These so is are dominantly coarse textured in the upper part and stratified coarse to medium textured in the lower part.

The Pizene sorts are nearly level to gently sloping. They are on wind-worked alluvial fans and stream terraces. These soils have a dominantly moderately coarse textured surface layer, a medium or moderately fine textured subsoil that is alkali-affected, and a moderately coarse textured substratum.

Of minor extent in this unit are Bluewing Variant, Delp, Isolde, and Yerington Variant soils. The Delp and Isolde soils are dominantly moderately coarse or coarse textured. They are on dunes and hummocks and support Indian ricegrass, hairy horsebrush, and black greasewood. The fine textured Bluewing Variant soils and the medium textured Yerington Variant soils and the medium textured Yerington Variant soils are on remnants of old lacustine landscapes. They support black greasewood and fourwing saltbush

This unit is used mainly for livestock grazing and rangeland wildlife habitat. Some areas are used as angated cropland and for homesite development

The main limitation of this unit for livestock grazing and rangeland wildlife habitat is the low average annual precipitation.

The main limitation of this unit for irrigated cropland is low available water capacity of the Malpais and Yerington soils. The Malpais soils are also mited by large stones and cobbles, the Yerington soils by the rapid water infiltration rate of the surface layer and the Pizene soils by a high concentration of alkali in the subsoil. Slope also limits some areas of the Malpais and Yerington soils.

This unit is moderately suited to homesite development. The Yerington soils are imited by inadequate filtration of septic tank effluent and instability of excavations, and the Malpais soils by the content of large stones and cobbles. The Pizene so is have few limitations

Veta-Hotsprings-Haybourne

Nearly level to strongly sloping, very deep, well drained soits on recent artifula fans and stream terraces

This map unit makes up about 2 percent of the survey area, it is mainly in the west-central part of the area in Smith Valley. It is on alluvial fans below granitic mountains. The vegetation is mainly Wyoming big sagebrush and bottlebrush squirrelta?

The Veta soils are gently sloping to strongly sloping. They are on recent alluvial fans and stream terraces. These soils are dominantly very gravelly or extremely gravelly and moderately coarse textured throughout the profile.

The Hotsprings soils are nearly level to moderately sloping. They are on allowal fans. These soils are

dominantly gravelly and coarse textured throughout the prof. e.

The Haybourne soils are nearly level. They are on alluvial fans. These soils are dominantly medium textured in the upper part and moderately coarse textured in the lower part.

Of minor extent in this unit are Charlebois, Holbrook, and Rebel soils. The Charlebois soils have a moderately fine textured subsoif, Holbrook soils are stony throughout the profile, and Rebel soils are moderately coarse textured throughout the profile.

This unit is used mainly as irrigated cropland and for homes to development, fivestock grazing, and rangeland wild fe habitat.

The main imitation of this unit for livestock grazing and rangeland wild ife habitat is the low average annual precipitation. The Veta and Hotsprings soils are also limited by low available water capacity.

The main limitation of this unit for irrigated cropland is low or moderate available water capacity. The Hotsprings soils also are limited by a rapid water infiltration rate, and the Veta soils by a large content of rock fragments in the profile. Slope also limits some areas of the Hotsprings and Veta soils.

This unit is moderately suited to homesite development. The main imitations are inadequate filtration of septic tank efficient and instability of excavations on the Haybourne and Hotsprings soils. The Veta so is are limited by a large content of rock fragments in the profile. Some areas of Haybourne and Veta so is are flooded during high intensity storms.

7. Cleaver-Rawe-Perazzo

Nearly level to moderately steep, shallow and very deep, well drained soils; on alluvial lans

This map unit makes up about 9 percent of the survey area. It is throughout the central and eastern part of the area. It is on older alluvial fans between the surrounding hills, take plains, and flood plains. The vegetation is mainly Bailey greasewood, shadscale, and Indian ficeorass.

The Cleaver soils are shallow and gently sloping to moderately steep. These soils have a medium textured surface layer and a gravelly, medium and moderately fine textured subsoil over a hardpan

The Rawe soils are very deep and gently sloping to strongly sloping. These soils have a thin, medium textured surface layer and a fine textured subsoil over a very gravely or extremely gravelly, moderately coarse textured substratum.

The Perazzo soils are very deep and nearly level to strongly stoping. These soils have a very gravelly, medium textured surface layer and a very gravelly, moderately fine textured subsoil over an extremely gravelly, coarse textured substratum.

Of minor extent in this unit are Biddleman, Gamgee, Hawsley, Lox, Risue, and Smedley soils. The Siddleman,

Gamgee, and Lox soils are alkali-affected in the subsoil. The Hawsley soils are coarse textured throughout the profile. The Risue and Smediey soils have a fine textured subsoil.

This unit is used mainly for livestock grazing and rangeland wildlife habitat. The main imitation is the low average annual precipitation. The Cleaver soils are a so limited by the shallow depth to the hardpan

8. Fulstone-Shree-Reno

Gently sloping to moderately steep, shallow, moderately deep, and very deep, well drained soils, on alluvial fans

This map unit makes up about 7 percent of the survey area. It is in the extreme western and southern parts of the area. It is on older all uvial fans below the higher mountains. The vegetation is mainly Wyoming big sagebrush, low sagebrush, and Thurber needlegrass.

The Fulsione soils are shallow and gently sloping to moderately steep. These soils have a medium textured surface layer and a fine textured subsoil over a hardpan.

The Shree soils are very deep and moderately sloping. These soils have a very grave y, medium textured surface layer and a dominantly very gravelly or extremely gravelly, moderately fine textured subsoil over a very gravelly or extremely gravelly, medium textured substratum.

The Reno soils are moderately deep and gently sloping to strongly sloping. These soils have a medium textured surface layer and a fine textured subsoil over a hardpan

Of minor extent in this unit are Ackley Hunewill and Stucky soils. The Ackley soils have a moderately fine textured subsoil over a moderately coarse textured substratum. The Hunewill soils have textures dominantly modified with cobbles and gravel, and the Stucky soils have textures dominantly modified with cobbles.

This unit is used mainly for livestock grazing and rangeland wildlife habitat. Some areas are used for homesite development.

The main limitation of this unit for ivestock grazing and rangeland wildlife habitat is the low average annua precipitation. The Fulstone soils are also I mited by low available water capacity and shallow rooting depth

This unit is poorly suited to homesite development. The main limitations are the hardpan of the Fulstone soils, slow permeability and hazard of flooding on the Shree soils, and the content of highly expansive day, the hardpan, and inadequate infiltration of effluent in the Reno soils. Stope is also a limitation in some areas

Areas Dominated by Soils on High Terraces, Foothills, and Low Mountains

This group consists of four map units. Most of the soils in this group are on low mountains, footbills, and remnants of high terraces. Flevation is 4,300 to 7,500

feet. The average annual precipitation is 4 to 12 inches. the average annual air temperature is 46 to 52 degrees. F, and the frost-free season is 90 to 130 days.

These so is are very shallow and shallow and are well drained and somewhat excessively drained. Areas of these so s on rounded hills and tops of terraces or plateaus are gently sloping to moderately steep, and the areas on hels and mountainsides and dissected side slopes of Tertiary sediment are moderately steep to very steep.

9. Piropette-Vylach-Weena

Nearly level to steep, very shallow and shallow, well drained soils; on terraces and plateaus

This map unit makes up about 6 percent of the survey area. It is along the northern and southern boundaries and throughout parts of the middle of the area. It is onplateaus and dissected terraces. The vegetation is mainly Bailey greasewood, shadscale, and Indian riceorass.

The Pirouette soils are shallow and nearly level to moderately steep. They are on plateaus. These sons have a dominantly very stony, moderately coarse textured surface layer and a very cobbly, moderately fine textured subsol over a hardpan. The hardpan is

underlain by bedrock.

The Vylach soils are shallow and gently sloping to moderately sloping. They are on the tops of old dissected terraces. These soils have a dominantly gravelly, moderately coarse textured surface layer and a moderatery fine textured subsort over a strongly camented hardpan. The hardpan is underlain by soft bedrock

The Weens soils are very shallow and are moderately steep and steep. They are on the side slopes of dissected terraces. These soils are dominantly medium

textured and are underlain by badrock.

Of minor extent in this unit are Celeton, Haar, Osobb, and Ravenell so s. The Celeton, Hear, and Ravenell soils are very shallow to bedrock, and the Osobb soils are very shallow to a hardpan. The Ravenell soils support galleta and low sagebrush. The Haar soils support sparse stands of Wyoming big sagebrush and desert need egrass

This unit is used for livestock grazing and rangeland wildlife habitat. The main limitations are the low average annus, precipitation, very low available water capacity,

and restricted rooting depth.

10. Berit-Chill-Minneha

Moderately sloping to very steep, very shallow and shallow, well drained and somewhat excessively drained soils, on hills and low mountains

This map unit makes up about 4 percent of the survey area. It is in the Pine Grove Hills and Pine Nut. Mountains. The vegetation on the Chilf and eroded Berit.

soils is mainly Wyoming big sagebrush and desert needlegrass. The vegetation on the Minneha and noneroded Berit soils is mainly pinyon and juniper

The Beril soils are very shallow, somewhat excessively drained, and moderately sloping to steep. They are on mountainsides and rounded crests. These soils have a dominantly very gravelly, coarse textured surface layer and a very gravelly, moderately fine textured subsor over bedrock

The Chilf soits are very shallow, well drained, and moderately sloping to moderately steep. They are on low hills. These sols have a dominantly gravelly, moderately coarse textured surface layer and a graveily, moderately fine textured subsoil over bedrock

The Manneha soils are shallow, somewhat excessively drained, and steep and very steep. They are on mountainsides. These soils are dominantly dark colored, extremely story, moderately coarse textured material over bedrock

Of minor extent in this unit are Ho brook Variant, Surgem, and Trid soils. These soils are moderately deep to bedrock. The Holbrook Variant and Trid soils support mountain big sagebrush, Thurber needlegrass, and antelope bitterbrush. The Surgem soils support low sagebrush, Thurber needlegrass, and antelope bitterbrush

This unit is used for livestock grazing and wild ife habitat. The main limitations are the very low available. water capacity, restricted rooting depth, and steepness of slope

11. Theon-Singatse-Mirkwood

Strongly sloping to very steep, very shallow, well drained and somewhat excessively drained soils, on hills and low mountains

This map unit makes up about 17 percent of the area It is in the central and eastern parts of the area, it is on arid hills and low mountains. The vegetation is mainly Sailey greasewood, shadscale, and Indian ricegrass

The Theon soils are well drained and strongly sloping to very steep. They are on foothills and low mountains. These soils have a dominantly gravelly and stony, medium and moderately coarse textured surface layer and a very gravelly, moderately fine textured subsoil over bedrock

The Singatse soils are somewhat excessively drained and strongly sloping to very steep. They are on hi is and low mountains. These soils are dominantly very gravelly. moderately coarse textured material over bedrock,

The Mirkwood soils are well drained and moderately steep to very steep. They are on mountainsides. These soils have a dominantly very cobbly and extremely stony moderately coarse textured surface layer and a very gravelly, medium and moderately fine textured subsoil over bedrock

Of minor extent in this unit are Nemico, Old Camp, and Unipnes soils. The Nemico soils are shallow to a hardpan and support galleta and shadscale. The Old Camp soils on north-facing side slopes are cobbly and stony and support Wyoming big sagebrush and bottlebrush squirreltail. The Unipnes soils are very shallow to soil bedrock and support desert needlegrass and ittleleaf horsebrush

This unit is used for livestock grazing and rangeland wild fe habitat. The main limitations are the low average annual precipitation, very low available water capacity.

and very shallow rooting depth

12. Lapon-Olac-Wile

Moderately sloping to very steep, very shallow and shallow, well drained soils, on hills and low mountains

This map unit makes up about 11 percent of the survey area. It is in the western part of the area. It is on footh, is and low mountains of the Pine Nut Mountains and Pine Grove Hills. The vegetation is mainly low sagebrush and pine bluegrass on the Lapon soils and pinyon and juniper on the Wile soils.

The Lapon so is are very shallow and moderately sloping to steep. They are on hills and mountains. These soils have a dominantly extremely stony, medium textured surface layer and a very gravelly, moderately fine textured subsoil over a hardpan. The hardpan is

under ain by bedrock

The O ac soils are very shallow and strongly sloping to very steep. They are on hills and mountains. These soils have a dominantly very story, medium textured surface layer and an extremety gravelly, moderately fine textured subsoil over bedrock.

The Wile soils are shallow and moderately steep. They are on mountainsides and ridges, These soils have a dominantly gravelly, moderately coarse textured surface ayer and a gravelly, fine textured subsoil over weathered bedrock.

Of minor extent in this unit are the Koontz, Loomis, Reno Variant, Rowel, Zephan, and Zyzzi soits. The Loomis and Zephan soits dominantly have a very gravelty, fine textured subsoil and support low sagebrush and Thurber needlegrass. The very gravelty, moderately fine textured Koontz soils and the medium textured Reno Varient so is support Wyoming big sagebrush. Thurber needlegrass, and desert needlegrass. The Rowel and Zyzzi soils are very shallow and support low sagebrush and calleta.

This unit is used for livestock grazing and rangeland wild fe habitat. The main limitations are the very low available water capacity and restricted rooting depth.

Areas Dominated by Soils on Alluvial Fans, and High Plateaus

This group consists of three map units. The soils in this group are mainly on mountainsides. Some soils are

on alluvial fans and plateaus. Elevation is 5,000 to 10,000 feet. The average annual predipitation is 8 to 18 inches, the average annual air temperature is 40 to 50 degrees F, and the frost-free season is 70 to 110 days

These soils are well drained. The areas on all uvia fans and plateaus are gently sloping to moderately steep, and the areas on the mountainsides are strongly sloping to very steep. Most of the soils are shallow to very deep over bedrock; some are shallow over a hardpan.

13. Ister-Hyloc-Cagle

Moderately steep to very steep, shallow and moderately deep, well drained soils, on mountainsides

This map unit makes up about 11 percent of the survey area. It is mainly in the western part of the area. It is on mountainsides. The vegetation is mainly Wyoming big sagebrush and Thurber needlegrass on the later soils and pinyon and juniper on the Cagle and Hyloc soils

The later soils are moderately deep and are steep and very steep. They are mainly on south- and west-facing side stopes. These soils have a dominantly extremely stony, moderately coarse textured surface layer and a very stony, moderately line textured subsoil over bedrock.

The Hytoc soils are shallow and are moderately steep and steep. They are mainly on south- and west-facing side alopes. These soils dominantly have a very cobbly, moderately coarse textured surface layer and a fine textured subsoil over weathered bedrock.

The Cagle soils are moderately deep and are moderately steep and steep. They are mainly on southand west-facing side slopes. These soils have a dominantly very stony, medium and moderately fine textured surface layer and a gravefly, fine textured subsoil over weathered bedrock.

Of minor extent in this unit are Drit, Duco, Flex, Nosrac, and Springmeyer soils. The Drit, Flex, and Nosrac soils have a dominantly very grave by subsoil, and the Springmeyer soils have a graveily subsoil. The vegetation on these soils in mainly Wyoming big sagebrush and Thurber needlegrass. The Duco soils have a stony and cobbby subsoil and mainly support prinyon and jumper

This unit is used as wood, and and for livestock grazing and rangeland wildlife habitat. The main smitations are steepness of slope and restricted rooting depth. Surface stones may hinder access for cutting trees in some

areas

14. Lunder-Glean-Devils

Gently sloping to steep, shallow to very deep, well drained soils; on alluvial fans, high plateaus, and mountainsides

This map unit makes up about 2 percent of the survey area, it is in the southern and west-central parts of the area. The soils in this unit are on high mountains, plateaus, and old aliuvial tans at elevations of 6,000 to 9,000 feet. The vegetation is mainly mountain big sagebrush and western needlegrass on the Glean suits and low sagebrush and Thurber needlegrass on the Devils and Lunder soils.

The Lunder some are shallow and gently sloping to strongly sloping. They are on old alluvial fans. These so is have a dominantly very cobbly, medium textured surface layer and a cobbly, fine textured subsoil over a hardpan

The Glean so is are deep and very deep and are strongly sloping to steep. They are on mountainsides. These soils have a dominantly gravelly or cobbly, medium textured surface layer and a very cobbly and very gravelly, medium and moderately coarse textured substratum underlain by bedrock.

The Devils soils are moderately deep and moderately sloping to moderately steep. They are on high plateaus. These soils have a dominantly very cobbly, medium textured surface layer and a gravelly, moderately fine textured subsoil over weathered bedrock.

Of minor extent in this unit are Devils Variant, Fulstone Variant, and Ravenell Variant soils. The Devils Variant soils are moderately deep; they have a gravelly, moderately fine textured subsoil and support mountain big sagebrush and western needlegrass. The Fulstone Variant soils have a fine textured subsoil and are moderately deep. The Ravenell Variant soils have a gravely fine textured subsoil and are shallow. The Fulstone Variant and Ravenell Variant soils support low sagebrush and Thurber needlegrass.

This unit is used for livestock grazing and rangeland wildlife habitat. The main limitations are very low available water capacity and shallow rooting depth of the Lunder soils and steepness of slope of the Devils and Glean soils.

15. Bradshaw-Hartig-Glean Variant

Moderately steep to very steep, moderately deep, deep, and very deep, well drained soils; on mountainsides

This map unit makes up about 1 percent of the survey area in the western part of the survey area in the Sweetwater and Pine Nut Mountains. The soits in this unit are on side slopes of high mountain peaks. The vegetation is mainly curileal mountainmahogany on the Bradshaw and Glean Variant soits and mountain big sagebrush and western needlegrass on the Hartig soils.

The Bradshaw soils are deep and are moderately steep and steep. These soils are dominantly extremely stony and extremely cobbly, moderately coarse textured material over bedrock.

The Hartig soils are deep and very deep and are steep. These soils are dominantly very gravelly, moderately coarse textured material over bedrock.

The Glean Variant soils are moderately deep and very steep. These soils are dominantly grave ly, coarse textured material over weathered bedrock.

Of minor extent in this unit are Burnborough, Hartig Vanant, and Ticino soils. The Burnborough soils are very deep and have a dominantly very stony surface layer and a very gravelly, moderately fine textured subsoil. The Hartig Vanant soils are shallow and are extremely gravelly. The Burnborough and Hartig Vanant soils support mountain big sagebrush and western needlegrass. The Ticino soils are moderately deep and have a gravelly, moderately fine textured subsoil over bedrock. They support curlleaf mountainmahogany.

This unit is used for limited livestock grazing and rangeland wildlife habitat. The main limitation is steepness of slope. Cool temperatures of the Glean Variant soils also limit plant growth.

Broad Land Use Considerations

The soils in the survey area vary widely in their potential for major land uses such as cropland, pastureland, rangeland, wild life habitat, and homesite development. Extensive changes in land use are not expected in the foreseeable future; however a slow steady growth in homesite development and industrialization is expected.

Approximately 89 percent of the land in the survey area is used for rangeland and related uses. These areas need careful management. General map units 11, 12, and 13 have the highest potential for producing forage. Because these soils produce more paistable plants, there is a tendency for them to be overused resulting in range deterioration. Map unit 14 produces much forage but has poor accessibility because of the high, steep slopes. Map units 4, 6, 7, 8, 9, and 10 are used extensively as rangeland. In general, the main limitation is the lack of adequate precipitation. Many of the soils in these units also have imited available water capacity because of imited depth to a hardpan or to bedrock or because they have a high content of rock fragments.

Approximately 3 percent of the land in the survey area is used for pasture and meadow hay. Map unit 1 is mainly well suited to and is extensively used for pasture and meadow hay. Some of the soils in this unit are limited for hay and pasture by the content of salt and alkali.

About 8 percent of the land in the survey area is used for cultivated crops. Another 4 percent of the area would be suitable for crops if irrigation water was made available. The main crops grown are wheat, barley alfalfa hay, irrigated pasture, onions, garlic, and potatoes. Most areas of map units 2, 3, and 5 are used as cropland. Many areas of map unit 1 are suitable for use as cropland if drainage is provided and the content of

toxic saits is reduced. Map unit 4 and some areas of map unit 6 are suitable for use as cropland if migated.

A most all of the land in the survey area is used by one or more kinds of wildlife. The openhand wildlife common to the area includes pheasant, quail, rabbits, songbirds, and coyote. Map units 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 are used extensively by these species. The availability of food, cover, and water provided by the areas of cropland, thickets, brushy areas, and pastures make these units attractive to wildlife. Wildlife habitat can be improved by planting selected species of vegetation to attract desired wildlife species.

Wetland wildlife common to the area are ducks, geese muskrat, beaver, and shore birds. Map unit 1 is the only area that extensively supports wetland wildlife.

Some of the soils in this unit support wet and plants. Shallow water areas have been established in areas of these soils to provide amproved wetland wildlife habitat. There is a good potential for establishment of more of this type of habitat within this area, however, much of the area has been artificially drained to improve production of cultivated crops and pasture.

The upper parts of the east and west forks of Waiker River and Desert Creek support trout fisheries. These streams are stocked regularly and are fished heavily. The lower reaches of the Walker River and the Carson River have natural populations of catfish, whitefish, and carp. Lahontan Reservoir contains bass, perch, catfish, and trout. Many of the farms in the area have small points which contain bass, perch, catfish, and trout.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a soil series. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

So s of one series can differ in texture of the surface layer or of the underlying material. They also can differ in stope stoniness, salinity, welness, degree of erosion, and other character stics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Dia loam is one of several phases in the Dia series.

Some map units are made up of two or more major so, s. These map units are celled soil complexes and soil associations

A soil complex consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Dra-Sagouspe complex is an example.

A soil association is made up of two or more geographically associated soils that are shown as one unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar Delp-Lox association is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or so a. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

The range site number given for so is at the end of the map unit descriptions coincides with the last part of the range site name on table 6

This survey includes *miscellaneous areas*. Such areas have little or no soil materia, and support little or no vegetation. Rock outcrop is an example. Misce laneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

This survey was mapped at two levels of detail. At the most detailed level, map units are narrowly defined. This means that soil boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Soil boundaries were plotted and verified at wider intervals. The narrowly defined units are indicated by an asterisk in the soil map legend. The detail of mapping was selected to meet the anticipated long-term use of the survey, and the map units were designed to meet the needs for that use.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Map Unit Descriptions

101—Ackley sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on all uvisi fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 4,600 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy loam about 10 inches thick. The subsoil is brown and yellowish brown sandy loam and loam about 24 inches thick. The substratum to a depth of 60 inches or more is

tight ye lowish brown fine sandy loam.

included in this unit are about 7 percent Hunewill soils intermingled throughout the unit (range site 26-16), 4 percent Ackiey Variant soils on toe slopes of alluvial fans in the Moundhouse area (range site 26-12), 2 percent Reno soils on convex alluvial fans (range site 26-25), and 2 percent Veta soils in drainageways and on associated alluvial fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Ackley soil is moderate. Available water capacity is moderate. Effective rooting depth is 60 nones or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is

slight.

This unit is used mainly for livestock grazing, irrigated cultivated crops and hay, and wildlife habital. It is also

used for homesite development

The potential plant community on this unit is mainly Wyoming big sagebrush, Indian neegrass, and Thurber need egrass. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreitail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

This unit is well suited to irrigated hay and pasture Leveling heips to insure the uniform application of water

This unit is well suited to irrigated cultivated crops. It has few limitations. Furrow, border, corrugation, and sprinkier irrigation systems are suited to the unit. For the efficient application and removal of irrigation water, leveling a needed in stoping areas.

fights unit is used for building foundations, the effects of shrinking and swelling are minimized by using proper engineering designs and by backfilling with material that

has low shrink-swe, potential

The main limitation of this unit for septic tank absorption fields is the moderate permeability of the soil. This limitation can be overcome by increasing the size of

the absorption field.

This unit is limited for roads because of the moderate potential for frost heaving and the moderate content of highly expansive clay. Damage is minimized and maintenance cost reduced by providing roads with adequate surface drainage, a stable base, and an adequate wearing surface.

This map unit is in capability subclasses lic. imgated,

and Vic. nonirrigated. It is in range site 26-16

102—Ackiey gravelly sandy loam, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 4,600 feet. The average annual precipitation is about 9 inches, the average.

annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown gravelly sandy loam about 10 inches thick. The subsoil is brown and yellowish brown sandy loam and loam about 24 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown fine sandy loam.

Included in this unit are about 7 percent Hunewill so is on altuvial fans (range site 26-16), 4 percent Ackley Variant soils that have a gypsiferous substratum and are on toe slopes of alluvial fans in the Moundhouse area (range site 26-12), 2 percent Reno soils on convex fan remnants (range site 26-25), and 2 percent Veta so 8 in dramageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage vanes from one area to another

Permeability of this Ackley soil is moderate. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and for impated cultivated crops, hay, and pasture. It is also used for homesite development and wildlife habitat.

The potential plant community on this unit is mainly Wyoming big sagebrush, Indian ricegrass, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main imitation is the low average annual precipitation.

This unit is well suited to irrigated hay pasture, and cultivated crops. Furrow, border corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. If furrow or corrugation impation systems are used, runs should be on the contour or across the slope. For the efficient application and removal of irrigation water leveling is needed in sloping areas. Use of pipe, ditch liming, or drop structures in irrigation ditches facilitates stringation and reduces ditch erosion.

If this unit is used for homesite development, the effects of stinnking and swelling are minimized by using proper engineering designs and by backting with material that has low shrink-swell potential.

If the unit is used for septic tank absorption fields, the limitation of moderate permeability can be overcome by increasing the size of the absorption field.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface.

This map unit is in capability subclasses lie, imgated, and Vic, noningated, it is in range site 26-16

103—Ackley-Ackley Variant complex. This map unit is on all uvia, fans. Slope is 0 to 2 percent. Elevation is 4,300 to 4,600 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average trost-free period is 100 to 120 days.

This unit is 50 percent Ackley sandy loam and 35 percent Ackley Variant sandy loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Hunewill so is intermingled throughout the unit (range site 26-16) and 5 percent Gypsum land, mostly on slope breaks included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Ackley soil is very deep and well drained. It formed in a uvium derived from various kinds of rock. Typically the surface layer is grayish brown sandy loam about 10 inches thick. The subsoil is brown and yellowish brown sandy loam and loam about 24 inches thick. The substratum to a depth of 60 inches or more is lightly ellow ship brown fine sandy loam.

Permeability of this Ackley soil is moderate. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Ackley Variant soil is very deep and well drained it formed in alluvium derived dominantly from basic igneous rock and in gypsum. Typically, the surface layer is brown sandy oam about 7 inches thick. The subsoil is yellowish brown and pale brown loam and silt loam about 14 inches thick. The substratum to a depth of 60 nches or more is white, gypsiterous fine sandy loam. Depth to the gypsiterous substratum ranges from 20 to 40 inches.

Permeability of this Ackley Variant soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight, This soil is slightly affected by salts and alkali throughout the profile.

This unit is used mainly for livestock grazing and irrigated cultivated crops. It is also used for homesite development

The potential plant community on the Ackley soil is mainly Wyoming big sagebrush, Indian ricegrass, and Thurber need egrass. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and bott-ebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitation is the low average annual precipitation.

The potential plant community on the Ackley Variant soil is mainly black greasewood, basin wildrye, and basin

big sagebrush. The present vegetation in most areas is mainly black greasewood, basin big sagebrush, and basin wildrye. The production of forage is limited by the low average annual precipitation, the very low averable water capacity, and the slightly satine and alkal condition of the soil. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and the slightly saline surface layer.

Seeding of large areas of the more favorable Ackley soil in this unit is difficult because of the pattern in which they occur with areas of the less favorable Ackley Variant soil.

This unit is suited to irrigated hay and pasture. Leveling helps to insure the uniform application of water

This unit is suited to irrigated cultivated crops. It is limited mainly by the restricted rooting depth and the very low available water capacity of the Ack ey Variant soil. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. In the Ack ey Variant soil cuts required for leveling should leave at least 10 inches of soil material above the gypsiferous layer.

The main limitation for construction of dwellings on this unit is the potential for uneven settling of structures because of the dissolving of gypsum when water is applied to the Ack ey Variant soit. A thorough site investigation is needed to avoid areas that are underlain by gypsiferous material. The effects of shrinking and swelling are minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

The main limitation of this unit for septic tank absorption fields is the moderate permeability of the Ackley soil. This limitation can be overcome by increasing the size of the absorption field.

This unit is limited for roads because of the moderate potential for frost heaving and the moderate content of expansive clay. Damage is minimized and maintenance cost reduced by providing roads with adequate surface drainage, a stable base, and an adequate wearing surface.

This map unit is in capability subclasses. Ic, imigated and Vic, nonimigated. The Ackley soil is in range site 26-16, and the Ackley Varient soil is in range site 26-12.

121—Appian loamy sand. This very deep well drained soil is on lake terraces. It formed in loamy alluvium over lacustrine sediment derived from various kinds of rock. Stope is 0 to 2 percent. Elevation is 3 900 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray learny sand about 8 inches thick. The subsoil is brown sandy

clay learn about 10 inches thick. The substratum to a depth of 60 inches or more is light brownish gray sand that has mottles. In some areas the substratum contains avers and lenses of silty material.

Included in this unit are about 5 percent Isolde soits on stabilized dunes (range site 27-23), 3 percent Wabuska soits in shallow depressional areas (range site 27-6), and 2 percent Orizaba soits along abandoned stream channels (range site 26-12). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Appian soil is moderately slow Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is slightly salt- and alkali-affected to a depth of 18 inches.

Most areas of this unit are used for livestock grazing. A few areas are used for imigated cultivated crops.

The potential plant community on this unit is mainly black greasewood, basin big sagebrush, and basin wildrige. The present vegetation in most areas is mainly black greasewood, rabbitbrush, basin big sagebrush, and bottlebrush squire-itail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity of the surface layer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for impated cultivated crops, the main limitations are the slightly saline and alkali surface ayer and subsoil. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. For the efficient application and removal of impation water, leveling a needed in sloping areas. Cuts required for eveling should not extend into the sandy substratum. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying impation water. Subsoiling increases the water intake rate and allows salts to be leached downward.

Roads can easily be constructed and maintained on

This map unit is in capability subclasses Ills, imgated, and VI s, nonimgated. It is in range site 26-12

t22—Applan loam. This very deep, well drained soil sign lake terraces. It formed in loamy alluvium over acustrine sediment derived from from various kinds of rock. Slope is 0 to 2 percent. Elevation is 3,900 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

Typically, the surface layer is light brownish gray loam about 8 inches thick. The subsoit is brown sandy clay loam about 10 inches thick. The substratum to a depth

of 60 inches or more is right brownish gray sand that has mottles. In some areas the substratum contains thin layers and lenses of silty material

Included in this unit are about 5 percent isolde so is on stabilized dunes and hummocks, 3 percent Wabuska soils in shallow depressional areas, and 2 percent Orizaba soils in shallow depressional areas along shallow stream channels. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Appian soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkaliaffected to a depth of 16 inches.

This unit is used for irrigated cultivated crops and homesite development

If this unit is used for irrigated cultivated crops, the main limitation is the content of saits and alkali in the surface layer and subsoil. Furrow, border corrugation, and sprinkler impation systems are suited to the unit. For the efficient application and removal of impation water, leveling is needed in sloping areas. Cuts required for leveling should not extend into the sandy substratum. The content of saits and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying impation water. Subsoiling increases the water intake rate and allows salts to be leached downward.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields a inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses this, irrigated and Vtls, noningated.

123—Appian-Wabuska complex. This map unit is on old take terraces and alluvial flats. Slope is 0 to 2 percent. Elevation is 4,300 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

This unit is 50 percent Appian loamy sand and 35 percent Wabuska loam. The Appian soil is on dissected remnants of low lake terraces, and the Wabuska soil is on alluvial flats in slightly lower lying areas that have a puddled, crusted surface. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Isolde soils on stabilized dunes and low hummocks (range site 27-23), 4 percent Delp soils on stabilized dunes and small hummocks (range site 27-16), 3 percent Onzaba soils in sha low depressional areas (range site 27-5), and 3 percent Playas in depressional areas. Also included are small areas of soils that have a dark fine-textured surface layer. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Appian soil is very deep and well drained, it formed in pamy alluvium over racustrine sediment derived from various kinds of rock. Typically, the surface layer is light brownish gray foamy sand about 8 inches thick. The subsoil is brown sandy clay loam about 10 nones thick. The substratum to a depth of 60 inches or more is light brownish gray sand that has mottles.

Permeability of the Appian soil is moderately slow Ava, able water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

The Wabuska soil is very deep and somewhat poorly drained. It formed in alluvial material derived from various kinds of rock. Typically, the surface layer is light gray and pale brown loam about 9 inches thick. The underlying material to a depth of 60 inches or more is stratified, ght brown shigray and pale brown, mottled line sandy loam, sift loam, sandy loam, and sand.

Permeability of the Wabuska soil is moderate. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table at a depth of 30 to 42 inches from May to July. Runoff is very slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. In some areas the underlying material is slightly affected by salts and alkali.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Applian soil is mainly black greasewood, basin big sagebrush, and basin wildrye. The present vegetation in most areas is mainly brack greasewood, rubber rabbitbrush, and basin big sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Wabuska soil is mainly basin wildrye, inland saltgrass, and black greasewood. The present vegetation in most areas is mainly black greasewood and inland saltgrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Grazing should be delayed until the soils in this unit have drained sufficiently and are firm enough to withstand trampling by livestock. Evestock grazing

should be managed to protect the unit from blowing and drifting sand.

The Wabuska soil is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage Roads can easily be constructed and maintained on the Appian soil.

This map unit is in capability subclasses lifs, imgated, and Vils, noningated. The Appian soi is in range site 26.12, and the Wabaska soil is in range site 27-6.

124—Appran-Delp complex, 0 to 15 percent alopes. This map unit is on old lake terraces and lake plains. Elevation is 4,300 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

This unit is 50 percent Appian loamy sand that has slopes of 0 to 2 percent and 40 percent Delp fine sand that has slopes of 2 to 15 percent. The Appian soil is on old dissected take terraces and take plains and the Deip soil is on stabilized dunes and hummooks on take plains. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Orizaba soils that are in shallow depressional areas and have a high water table (range site 27-5) and 5 percent Wabuska soils in shallow depressional areas (range site 27-6) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Appian soil is very deep and well drained it formed in alluvium over facustrine sediment derived from various kinds of rock. Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The subsoil is brown sandy clay foam about 10 inches thick. The substratum to a depth of 60 inches or more is light brownish gray sand that has mottles.

Permeability of the Appian soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

The Delp soil is very deep and well drained. It formed in eolian sand derived from granitic rock. Typically, the surface layer is light gray fine sand about 1. Inch thick. The underlying material to a depth of 60 inches or more is light gray fine sand that has thin layers and lame ae of sandy loam.

Permeability of the Deip soil is moderate. Ava. able water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is skight. The hazard of soil blowing is high

This unit is used for livestock grazing, wildlife habitat, and homesite development.

The potential plant community on the Appian soil is mainly black greasewood, basin big sagebrush, and basin wildrye. The present vegetation in most areas is mainly black greasewood, basin big sagebrush, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation. The suitability of this soil for range and seeding is very poor. The main mitation is the low average annual precipitation.

The potential plant community on the Delp soil is mainly Indian ricegrass, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly black greasewood, hairy horsebrush, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

Strongly sloping areas are a concern for the construction of dwellings on the Delpisoil. The Appian soil is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of efficient. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

To min mize cutting and litting, roads on the Delp soil should be located in the less sloping areas. When this soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing. Erosion is minimized and maintenance cost reduced by providing roads with a durable wearing surface. Roads can easily be constructed and maintained on the Appian soil.

This map unit is in capability subclasses lifs, imgated, and V is, nonirrigated. The Appian soil is in range site 26-12, and the Delp soil is in range site 27-16.

141—Bango sandy loam. This very deep, well drained so: is on smooth lake terraces, it formed in stratified lacustrine sediment derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,000 to 4,200 feet. The average annual precipitation is about 5 notes the average annual air temperature is about 51 degrees F and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray sandy oam about 2 inches thick. The subsoil is brown sandy clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is stratified and averages sill loam or fine sandy loam that is pale brown to light gray.

ncluded in this unit are about 10 percent Lahonton soils in broad flat areas in the lower part of the unit (range site 27-25) and 5 percent Patna soils in slightly elevated areas, mostly in the upper part of the unit (range site 27-9). Also included are small areas of soils that have a thick, sandy surface layer. Included areas

make up about 15 percent of the total acreage. The percentage vanes from one area to another

Permeability of this Bango soil is moderately slow Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly affected by salts and alkali throughout the profile. It is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing and homesite development. It can be used for irrigated cultivated crops if irrigation water is made available.

The potential plant community on this unit is mainly Indian ricegrass, bottlebrush squirreltail, and shadscale. The present vegetation in most areas is mainly Bailey greasewood and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitations are the low average annual precipitation and the slightly sainle and alkal surface layer.

The main limitation for construction of dwellings is rare periods of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the moderately slow permeability. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface.

This map unit is in capability subclasses I is, irrigated and Vils, nonirrigated. It is in range site 27-18

142—Bango very gravelly loamy sand. This very deep, well drained soil is on smooth and slightly dissected lake terraces. It formed in stratified facustrine sediment derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,000 to 4,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees Fland the average frost-free period is 100 to 120 days.

Typically, the surface layer is very pale brown very gravelly loamy sand about 2 inches thick. The subsoll is brown sandy clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is stratified, pale brown to light gray loamy sand, sandy loam, and sit loam. In some areas the surface layer is thick and sandy

Included in this unit are about 5 percent Lahonton soils in broad flat areas, mainly in the lower part of the unit (range site 27-25), and 5 percent Patha soils in slightly elevated areas, mainly in the upper part of the unit (range site 27.9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Bango soil is moderately slow.

Available water capacity is high. Effective rooting depth

is 60 inches or more. Ruroff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high intensity storms. Channeling and deposition are common along streambanks. This soil is slightly affected by salts and alkali throughout the profile.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for impated cultivated

crops and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, bottlebrush squirreltail, and shadscale. The present vegetation in most areas is mainly Bailey greasewood shadscale, and harogeton. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the slightly saline and a kall surface tayer.

If this unit is used for irrigated cultivated crops, the main mitation is the slightly saline and alkali condition of the soil. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown.

The main limitation for construction of dwellings is rare periods of flooding. Flooding can be controlled only by

use of major flood control structures.

The main limitation for septic tank absorption fields is the moderately slow permeability. Use of sandy backfill for the tranch and long absorption lines helps to compensate for the moderately slow permeability.

Trafficability of roads can be improved by providing a stable base and an adequate wearing surface.

This map unit is in capability subclasses Ills, imigated, and VIIs, noningated. It is in range site 27-18

151—Biuewing Variant clay, 2 to 8 percent slopes. This very deep, well drained soil is on alluvial flats that have some channels. It formed in fine textured lacustrine sediment derived from various kinds of rock. Elevation is 4,500 to 4,700 feet. The average annual precipitation is about 5 niches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is light brownish gray clay about 3 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray clay.

nouded in this unit are about 7 percent Laboriton soils in low-lying areas (range site 27-25), 4 percent Orizaba soils in shallow depressional areas (range site 26-12), and 4 percent Pizene soils on terraces (range site 26-12), Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Bluewing Variant sor is very slow Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of sor blowing is slight.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on this unit is mainly Bailey greasewood, shadscare, black greasewood, and Indian ricegrass. The present vegetation in most areas is mainly black greasewood, shadscale, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation,

This unit is limited for roads because of the content of highly expansive clay that has low load-bearing capacity. Hoads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs noningated, and in range site 27-24

161—Bluewing very gravelly sand, 2 to 8 percent slopes. This very deep, excessively drained sor is on alluvial fans. It formed in alluviam derived from various kinds of rock. Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F and the average frost-free period is 100 to 120 days.

Typically the surface layer is grayish brown very gravelly sand about 3 inches thick. The underlying material to a depth of 60 inches or more is stratified and averages very gravely learny coarse sand or very

gravelly sand that is grayish brown.

Included in this unit are about 10 percent Malpais so son allowal fans (range site 27-18) and 5 percent Toulon soils on high lake terraces and bars (range site 27-18) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Bluewing soil is very rapid.

Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional very brief penods of flooding in July through September.

This unit is used for livestock grazing, wildlife habitat

and homesite development.

The potential plant community on this unit is mainly shadscale, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly Bailey greasewood, spiny hopsage, and some indian ricegrass. The production of forage is limited by the very low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity.

The main limitation for construction of dwellings is occasional periods of flooding. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

The man limitation for septic tank absorption fields is occasional periods of flooding and inadequate filtration of effluent. Because the substratum is very rapidly permeable, special design may be needed to avoid poliuting ground water.

This unit is limited for roads because of occasional

periods of flooding.

This map unit is in capability subclass VIIs, noningated, and in range site 27-18

162—Bluewing very stony loamy sand, 2 to 8 percent slopes. This very deep, excessively drained soil is on a uvial fans. It formed an altuvium derived from various kinds of rock. Elevation is 4,200 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 110 to 120 days.

Typically, the surface layer is grayish brown very stony camy sand about 5 inches thick. The underlying material to a depth of 60 inches or more is grayish brown, stratified extremely gravelly sand and very gravelly loamy coarse sand.

neuded in this unit are about 10 percent Malpais soils on alluvial fans (range site 27-18) and 5 percent Toulon soils on high lake terraces and bars (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Bluewing soil is very rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, very brief periods of flooding in July through September.

This unit is used for livestock grazing, wildlife habital,

and homesite development.

The potential plant community on this unit is mainly shadscale. Bailey greasewood, and Indian neegrass. The present vegetation in most areas is mainly Bailey greasewood, spiny hopsage, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangetand seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The main imitation for construction of dwellings is occasional periods of flooding. It is difficult to establish and maintain structures that can protect this unit from

flash flooding

The main limitation for septic tank absorption fields is occasional penods of flooding and inadequate filtration of effluent. Because the substratum is very rapidly

permeable, special design may be needed to avoid polluting ground water

This unit is limited for roads because of occasional periods of flooding. Stones and cobbles on the surface make the construction of roads difficult.

This map unit is in capability subclass V Is, poningated, and in range site 27-18.

171—Cagle-Nosrac association. This map unit is on mountainsides. Slope is 15 to 50 percent. Elevation is 5,800 to 6,800 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 60 percent Cagle very stony ciay loam, 15 to 50 percent slopes, and 25 percent Nosrac stony loam, 30 to 50 percent slopes. The Cagle soil is on south-facing side slopes, and the Nosrac soil is on north-facing

side slopes.

Included in this unit are about 6 percent Hyloc soils on south- and west-facing side slopes (pinyon-juniper woodland), 4 percent lister soils on north- and east-facing side slopes (range site 26-5), 2 percent Lunder soils on mountain terraces and benches (range site 26-23), and 3 percent Rock outcrop on steep side slopes and ridges, included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Cagle soil is moderately deep and well drained, it formed in residuum and colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown very stony clay loam about 2 inches thick. The upper 13 inches of the subsoil is brown gravely clay, and the lower 15 inches is lightly elowish brown very gravelly clay. Weathered andesite is at a depth of 30 inches. Depth to weathered bedrock ranges from 20 to 40 inches. Where this soil adjoins the Carson City area, the surface layer is stony loam.

Permeability of this Cagle soil is slow. Available water capacity is low or very low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Nosrac soil is very deep and well drained it formed in residuum and colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown stony loam about 12 inches thick. The subsoil averages very gravely clay loam that is pale brown and brown. It is about 33 inches thick. The substratum to a depth of 60 inches or more is pale brown very gravelly loam.

Permeability of this Nosrac soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of soblowing is slight.

This unit is used for wood products, livestock grazing.

and wildlife habitat

The Cagle soil can produce 4 cords of wood per acre in a stand of pinyon and jumper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope, the very stony surface, and the high hazard of erosion. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment. Minimizing the risk of erosion is essential in harvesting trees.

The potential plant community on the Nosrac soil is mainly western needlegrass, mountain brome, and mountain big sagebrush. The present vegetation in most areas is mainly mountain big sagebrush, currant, and antelope bitterbrush with an invasion of pinyon and juniper. The production of forage is limited by the moderate available water capacity. The suitability of this so for rangeland seeding is very poor. The main mitation is steepness of slope. Because of the density of the pinyon and juniper trees in most areas, this Nosrac soil can also be managed as woodland. The reestablishment of the rangeland plant community in some areas may be difficult.

Steepness of slope firm to access and movement of avestock. Livestock grazing should be managed to protect the Nosrac soil from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is mitted for roads because of slope and the content of highly expansive clay in the Cagle soil. Cutting and fing a minimized by building roads in the less sloping areas of the unit Erosion is minimized and maintenance cost reduced by providing roads with surface drainage, a stable base, and a durable wearing surface.

This map unit is in capability subclass VIIs. The Nosrac son is in range site 26-5.

181—Charlebois loam, 0 to 2 percent slopes. This very deep well drained son is on alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,900 to 5,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 8 inches thick. The subsoil is grayish brown and pale brown clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and pale brown loam that is 20 to 40 percent slica and lime nodules.

Included in this unit are about 7 percent East Fork soils in swales and near the downslope edges of the unit and 3 percent Veta soils in drainageways. Also included are small areas of wet Charlebois soils affected by lateral seepage from canals. Included areas make up

about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Charlebois soil is moderately slow Available water capacity is high. Effective rooting depth is 60 inches or more. Hunoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated hay pasture and cultivated crops and for wildlife habitat

This unit is well suited to imigated hay pasture and cultivated crops. Furrow, border, corrugation, and sprinkler imigation systems are suited to the unit. The method used generally is governed by the crop grown.

If surface drainage and a stable base are provided damage from frost heaving is minimized for roads on this unit. It is difficult to establish and maintain structures that can protect the unit from flash flooding.

This map unit is an capability subclasses lic, irrigated, and Vic, nonlimigated

182—Chariebols toam, 2 to 4 percent alopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from basic igneous rock Elevation is 4,900 to 5,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 8 inches thick. The subsoil is grayish brown and pale brown clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and pale brown loam that is 20 to 40 percent silica and lime nodules.

Included in this unit are about 7 percent East Fork soils in swales and near the downslope edges of the unit and 3 percent Veta soils in drainageways. Included areas make up about 10 percent of the total acreage. The percentage values from one area to another

Permeability of this Charlebois soil is moderately allow Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing a slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated hay and pasture, cultivated crops, and wildlife habitat.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. For the efficient application and removal of irrigation water, leveling is needed in sloping areas.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

This map unit is in capability subclasses lie, imgated,

and Vic nonimigated.

184—Charlebois gravelly loam, 0 to 2 percent stopes. This very deep, well drained soil is on alluvial fairs. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,900 to 5,100 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

The surface layer is grayish brown gravelly loam about 8 inches thick. The subsoli is grayish brown and pale brown clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and pale brown loam that is 20 to 40 percent since and

me nodules.

Included in this unit are about 5 percent East Fork soils in swales and near the downstope edges of the unit and 5 percent Veta soils in drainageways, included areas make up about 10 percent of the total acreage. The

percentage varies from one area to another

Permeability of this Charlebois soil is moderately slow Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for cultivated crops and wildlife

habital.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The gravelly texture of the surface layer limits harvesting of root crops, especially garlic.

If auriace drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit, it is difficult to establish and maintain structures that

can protect this unit from flash flooding.

This map unit is in capability subclasses lic, irrigated, and Vic, nonimpated

185—Charlebois sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans and flats. It formed in alluvium derived from mixed igneous rock. Elevation is 4,800 to 5,400 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy loam about 8 inches thick. The subsoil is brown clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is grayish brown and light brownish gray loam that is 20 to 40 percent silica and lime nodules. In some areas the surface layer is sand or loamy sand.

Included in this unit are about 5 percent East Fork soils in swales and 5 percent Patna soils in long, narrow areas throughout the unit. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Chartebois soil is moderately slow Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for cultivated crops and wildlife

This unit is well suited to arrigated cultivated crops. It is limited mainly by susceptibility to soil blowing when the surface is bare. Mainteining crop residue on or near the surface reduces runoff, reduces soil blowing and he ps to maintain soil tilth and organic matter content. Furrow, border, corrugation, and sprinklar impation systems are suited to the unit. The method used generally is governed by the crop grown.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. It is difficult to establish and maintain structures that

can protect this unit from flash flooding

This map unit is in capability subcrasses fic, irrigated and VIc, nonlingated.

191—Chili association. This map unit is on hills. Slope is 8 to 30 percent. Elevation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F and the average frost-free period is 100 to 130 days.

This unit is 50 percent Chilt grave by sandy loam that has slopes of 8 to 15 percent and is on the lower part of the slopes, and it is 40 percent Chill graveily sandy loam that has slopes of 15 to 30 percent and is on the upper

part of the slopes.

Included in this unit are about 6 percent Haybourne soils on the lower lying colluvial and alluvial fans (range site 26-16) and about 4 percent Veta soils in drainageways (range site 26-24). Also included are small areas of moderately deep and deep soils on side siopes. Included areas make up about 10 percent of the total acreage. The percentage values from one area to another.

The Chill soil, 8 to 15 percent slopes, is very shallow and well drained. It formed in residium derived dominantly from granitic rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly sandy clay loam about 4 inches thick. Decomposed granite is at a depth

of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of this Chill soil is moderately slow Avar able water capacity is very tow. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Chill soil, 15 to 30 percent slopes, is very shallow and well drained, it formed in residuum derived dominantly from granitic rock. Typically, the surface layer is light brownish gray gravely sandy loam about 3 inches thick. The subsoil is brown gravelly sandy clay toam about 4 inches thick. Decomposed granite is at a depth of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of this Chill soil is moderately slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soft blowing is slight.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Chill soil, 8 to 15 percent stopes, is mainly desert needlegrass. Thurber needlegrass. Wyoming big sagebrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The production of forage is limited by the low average annual precipitation, very low available water capacity, and restricted rooting depth. The suitability of this soil for range and seeding is very poor. The main mitation is very low available water capacity.

The potential plant community on the Chill soil, 15 to 30 percent slopes, is mainly desert needlegrass. Wyoming big sagebrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush spiny hopsage and Indian neegrass. The production of forage is limited by the low average annual precipitation, very low available water capacity, restricted rooting depth, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitation is very low available water capacity.

Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface tayer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

The Chill sor, 15 to 30 percent slopes is limited for roads because of slope. Culting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Power equipment is needed to make cuts in the upper part of the bedrock, if surface drainage and a

stable base are provided, damage from frost heaving is minimized

The Chill soil, 8 to 15 percent slopes, is in capability subclass Vils and in range site 26-11. The Chill soil, 15 to 30 percent slopes, is in capability subclass V is and in range site 26-11.

201—Cleaver loamy fine sand, 2 to 8 percent slopes. This shallow, well drained soil is on oid a uvia fans overlain by eolian sand. It formed in a uvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray learny fine sand about 6 inches thick. The subset is brown gravelly clay learn about 8 inches thick. Below this is a stice- and time-cemented hardpan about 25 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

included in this unit are about 10 percent Yerington soils on the leeward side of slope breaks and on hummocks (range site 27-9) and about 5 percent Malpais soils in drainageways (range site 27-18) included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development

The potential plant community on this unit is mainly Indian ricegrass, fourwing sa thush, and Balley greasewood. The present vegetation in most areas is mainly Indian ricegrass, Bailey greasewood, shadscale and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

The main limitation for construction of dwellings is the shallow depth to the hardpan. Heavy equipment is needed for excavation.

The main limitation for septic tank absorption fields is the shallow depth to the hardpan. Septic tank absorption fields should be designed to compensate for this mitation.

This unit is limited for roads because of the shalow depth to the hardpan. Roads should be designed to minimize cuts. Heavy equipment is needed for excavation.

This map unit is in capability subclass VIIs, nonimidated, and in range site 27-9

202-Cleaver gravelly sandy loam, 2 to 4 precent slopes. This shallow well drained soil is on old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F. and the average frost-free period is 100 to 130 days.

Typically, the surface layer averages gravelly sandy earn that is light brownish gray, it is about 3 inches thick. The subsoil averages gravelty clay loam that is brown. It is about 8 inches thick. Below this is a silicaand lime-cemented hardpan about 15 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the

hardpan ranges from 10 to 20 inches.

ncluded in this unit are about 6 percent Perazzo soils on skirts of alluvial fans (range site 27-18), 5 percent Malpa,s soils in drainageways and on inset alluvial fans (range site 27-18) and 4 percent Yerington soils on the eeward side of swales and draws (range site 27-9) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is slow, and the hazard of water erosion to slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and whild fe habitat. It is also used for homesite development.

The potential plant community on this unit is mainly nd an ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Balley greasewood, bud sagebrush. and bottlebrush squirreltail. The production of forage is mited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor The main limitations are the low average annual precipitation and very low available water capacity

The main limitation for construction of dwellings is the shallow depth to the hardpan. Heavy equipment is

needed for excavation

The main limitation for septic tank absorption fields is the shallow depth to the hardpan. Septic tank absorption fields should be designed to compensate for this

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

204—Cleaver stony sandy loam, 4 to 15 percent slopes. This shallow, well drained soil is on old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F. and the average frost free period is 100 to 130 days.

Typically, the surface layer is light brownish gray stony sandy loam about 3 inches thick. The subsoil is brown gravelly clay foam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

included in this unit are about 5 percent Ma pais soils on inset alluvial fans and in drainageways (range site 27-18) and 5 percent Yerington soils on the leeward side of draws (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies

from one area to another

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of sor blowing is slight

This unit is used mainly for livestock grazing and

wildlife habitat

The potential plant community on this unit is mainly Indian ricegrass, shadscate, bud sagebrush, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, spiny hopsage, and Indian ricegrass The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the very low average annual precipitation and very low available water capacity

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts. Heavy equipment is needed for

excavation.

This map unit is in capability subclass Vils, norwrigated, and in range site 27-18

206-Cleaver very stony loam, 2 to 4 percent slopes. This shallow, well drained son is on old a uvia fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray very stony loam about 3 inches thick. The subsor is brown gravelly clay loam about 8 inches thick. Below this is a silica- and time-cemented hardpan about 35 inches thick The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 6 percent Maipais so is in drainageways and on inset alluvial fans (range site 27 18) and 4 percent Yenngton soils on the leeward side of draws (range site 27-9). Included areas make up about

10 percent of the total acreage. The percentage vanes from one area to another

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10. to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly ndian neegrass, shadscale, Bakey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscare Barley greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is mited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor The main limitations are the low average annual precipitation and very low available water capacity

The main limitation for construction of dwellings is the shallow depth to the hardpan. Heavy equipment is

needed for excavation

The main limitation for septic tank absorption fields is the shallow depth to the hardpan. Septic tank absorption. fields should be designed to compensate for this mitation.

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts

This map unit is in capability subclass VIIs. non rrigated, and in range site 27-18.

207-Cleaver very stony loam, 15 to 30 percent slopes. This shallow well drained soil is on dissected sides of oid a luvial fans. It formed in a luvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average arrow air temperature is about 51 degrees F and the average frost-free period is 100 to 130 days.

Typically the surface layer is light brownish gray very stony learn about 3 inches thick. The subsoil is brown gravely clay loam about 8 inches thick. Below this is a silica- and me-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 6 percent Malpais soils. on inset alluvial fans and in drainageways (range site 27-18) and 4 percent Yerington soils on the leeward side of draws and on hummocks (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10. to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight

This unit is used for livestock grazing and wildlife habitat

The potential plant community on this unit is mainly Indian neegrass, shadscale, Bailey greasewood, and bud sagerush. The present vegetation in most areas is mainly shadscale, Barley greasewood, bud sagebrush, and bothebrush squirreftail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor The main limitations are the low average annual precipitation and the very low available water capacity Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results. in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing,

This unit is limited for roads because of slope and the shallow depth to the hardoan. Roads should be designed to minimize cuts because of the limited depth to the underlying cemented pan, Cutting and filling are reduced. by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance. cost reduced by stabilizing areas that have been

disturbed

This map unit is in capability subclass VIIe, nonwingated, and in range site 27-18

208—Cleaver association, sloping. This map unit is on old dissected alluvial fans. Slope is 2 to 15 percent. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air. temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Cleaver gravelly sandy loam that has slopes of 2 to 4 percent and 35 percent Cleaver stony sandy loam that has slopes of 4 to 15 percent The Cleaver gravelly sandy loam is in areas that are not dissected, and the Cleaver stony sandy loam is on dissected side slopes.

included in this unit are about about 10 percent Malpars soils on inset alluvial fans and in drainageways (range site 27-18) and 5 percent Yenngton soils on the leeward side of dissected side slopes (range site 27-9) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Cleaver gravelly sandy loam is shallow and we drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardban. about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Permeability of the Cleaver grave ly sandy loam is slow Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil browing is slight.

The Cleaver stony sandy loam is shallow and welldrained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray stony sandy loam about 3 inches thick The subsoil is brown gravely clay loam about 8 inches thick. Below this is a slace- and time-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches

Permeability of the Cleaver stony sandy loam is slow Ava able water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight

This unit is used for livestock grazing and wildlife habital

The potential plant community on the Cleaver gravelty sandy loam is mainly Indian ricegrass, shadscale, Bailey greasewood and bud sagebrush. The present vegetation in most areas is mainly shadscale. Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland. seeding is very poor. The main limitations are the low average annual precipitation and very low available water capac ly

The potential plant community on the Cleaver slony sandy loam is mainly Indian neegrass, shadscale, Bailey preasewood and bud sagebrush. The present vegetation in most areas is mainly shadscale. Bailey greasewood. bud sagebrush, and bottlebrush squirrettail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland. seeding is very poor. The main limitations are the low average annua, precipitation and very low available water capac ly

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VIIs, nonimigated, and in range site 27-18

209-Cleaver association, moderately steep. This map unit is on old, highly dissected alluvial lans. Slope is 4 to 30 percent. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Cleaver very gravetly sandy loam that has slopes of 15 to 30 percent and 35 percent Cleaver gravelly sandy loam that has slopes of 4 to 15 percent. The Cleaver very gravelly sandy loam is on side stopes of dissected fans, and the Cleaver grave ly sandy loam is on the summits.

Included in this unit are about 10 percent Malpais soils on inset alluvial fans and in dramageways (range site 27-18) and 5 percent Yerington soils on the feeward side of the dissected side slopes (range site 27.9) included areas make up about 15 percent of the total acreage The percentage values from one area to another

The Cleaver very gravely sandy loam is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly clay loam. about 8 inches thick. Below this is a silica- and limecemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is strongly cemented. Depth to the hardpan ranges from 10 to 20 inches

Permeability of the Cleaver very gravelly sandy loam is slow to the impervious hardpan. Available water capacity is very low. Effective rooting depth is 10 to 20 inches Runoff is rapid, and the hazard of water erosion is moderate. The hazard of son blowing is slight

The Cleaver gravelly sandy loam is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick The subsoil is brown graveily clay loam about 8 inches thick Below this is a sinca- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches

Permeability of the Cleaver gravelly sandy loam is slow to the impervious hardpan. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is shent. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wild ife

The potential plant community on the Cleaver very gravelly sandy loam is mainly indian neegrass. shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood bud sagebrush and bottlebrush squirreltair The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity

The potential plant community on the Cleaver gravelly sandy loam is mainly Indian ricegrass, shadscale, Balley greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is firmled by the low average annual precipitation. The suitability of this soil for rangeland

seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The Cleaver very gravely sandy loam is limited for roads because of slope and the shakow depth to the hardpan. The Cleaver gravelly sandy loam is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts because of the mited depth to the hardpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Cleaver very gravelly sandy loam is in capability subclass VI e, nonimpated, and in range site 27-18. The Cleaver gravelly sandy loam is in capability subclass VIIs inchimigated, and in range site 27-18.

221—Daizell sand, 2 to 4 percent alopes. This moderately deep, somewhat poorly drained soil is on lake terraces. It formed in lacustrine deposits derived from various kinds of rock. Elevation is 4,500 to 4,700 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown and about 3 nches thick. The subsoil is grayish brown and light gray sity clay loam about 18 inches thick. The next layer is a strongly since- and lime-cemented hardpan about 7 inches thick. The substratum to a depth of 60 inches or more is light gray and light clive brown sandy loam and loamy sand. Depth to the hardpan ranges from 20 to 40 inches.

Included in this unit are about 5 percent Veta soils on inset alluvial fans (range site 26-24) and 5 percent Dia soils in old stream channels (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Daizel, soil is moderately slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. A seasonal high water table is at a depth of 42 to 72 nones in March through June. This soil is slightly saltand alkal-affected above the hardpan.

This unit is used for impated cultivated crops, wildlife habitat, and livestock grazing.

The potential plant community on this unit is mainly black greasewood, basin big sagebrush, and basin wildrye. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitations are the sandy texture of the surface layer and slightly saline and alkali.

condition of the soil. Livestock grazing should be managed to protect this unit from blowing and drifting sand

This unit is suited to impated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler imgation systems are suited to the unit. The method used generally is governed by the crop grown For the efficient application and removal of irrigation water, leveling is needed in stoping areas. Because of the limited depth to the underlying hardpan, cuts required for leveling should be less than 8 inches deep. The content of sails and alkar can be reduced by using sociamendments such as gypsum and by leaching Impation water must be carefully applied to avoid raising the water table and increasing the concentration of salts and alkali in the soil. Use of pipe, ditch lining, or drop structures in impation ditches facilitates irrigation and reduces ditch erosion. Ripping and shattering the hardpan increases the effective rooting depth and improves internal drainage

If surface dramage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses. Vs. irrigated and Vils, noningated. It is in range site 26-12.

223—Daizeil clay loam, 0 to 2 percent alopes. This moderately deep, somewhat poorly drained soil is on lake terraces, it formed in lacustrine deposits derived from various kinds of rock. Elevation is 4,500 to 4,700 feet. The average annual precipitation is about 8 inches the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown clay loam about 3 inches thick. The subsoil is grayish brown and light gray silty clay loam about 18 inches thick. The next layer is a strongly silica- and lime-cemented hardpan about 7 inches thick. The substratum to a depth of 60 inches or more is light gray and light olive brown sandy loam and loamy sand. Depth to the hardpan ranges from 20 to 40 inches.

Included in this unit are about 5 percent Veta soils on toe slopes of fans (range site 26-24) and 5 percent Dia soils in old stream channels (range site 27-2), included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Dalzell soil is moderately slow Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. A seasonal high water table is at a depth of 42 to 72 inches in March through June. This soil is slightly saltand alkali-affected above the hardpan.

This unit is used for imgated cultivated crops, livestock grazing, and wildlife habitat

The potential plant community on this unit is mainly black greasewood, basin big sagebrush, and basin

wildrye The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the slightly saline and alkali condition of the so.

This unit is suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The content of saits and alkali can be reduced by using soil amendments such as gypsum and by leaching rrigation water must be carefully applied to avoid raising the water table and increasing the concentration of saits and alkali in the soil. Ripping and shattering the hardpan increases the effective rooting depth and improves internal drainage.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit

This map unit is in capability subclasses Ills, imgated, and Viss, nonimigated, it is in range site 26-12

231—Delp-Lox association. This map unit is on stabilized dunes and old alluvial fans. Slope is 2 to 15 percent. Elevation is 4,550 to 4,700 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days

This unit is 60 percent Delp loamy sand that has slopes of 2 to 15 percent and 30 percent Lox gravelly tine sandy loam that has slopes of 2 to 4 percent. The Delp soil is on stabilized sand dunes, and the Lox soil is on old alluvial fans between the dunes.

nouded in this unit are about 6 percent Lahonton soils on old lake plains (range site 27-25) and 4 percent Malpais soils in drainageways that transect the unit (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Deip soil is very deep and well drained. It formed in eolian sand derived from granitic rock. Typically, the surface layer is light gray and light brownish gray loarny sand about 5 inches thick. The subsoil is light gray and pale brown, stratified loarny sand and sandy loarn about 14 inches thick. The substratum to a depth of 60 inches or more is light gray and light brownish gray, stratified loarny coarse sand and loarny fine sand.

Permeability of the Delp soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Hunoff is medium, and the hazard of water erosion is slight. The hazard of soil browing is high.

The Lox soil is very deep and well drained. It formed in alluvium derived dominantly from basic igneous rock and grantic rock. Typically, the surface layer averages.

gravelly fine sandy loam that is light brownish gray and light gray it is about 3 inches thick. The subsoli is pale brown clay loam about 5 inches thick. The substratum to a depth of 60 inches or more is light brownish gray very gravelly sandy loam.

Permeability of the Lox soil is slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly or moderately salt- and alkali-affected in the surface layer and subsoil.

This unit is used for livestock grazing and wildlife

The potential plant community on the Delp soil is mainly Indian ricegrass, needleandthread, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly Indian ricegrass, datea, black greasewood, and shadscale. The potential plant community on the Lox soil is mainly black greasewood, Bailey greasewood, shadscale, and Indian neegrass. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirrettail

The production of forage on this unit is limited by the low average annual precipitation. The suitability of the unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation tivestock grazing should be managed to protect the unit from blowing and dofting sand.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. When the Delp soil is dry roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing. Roads can easily be constructed and maintained on the Lox soil.

This map unit is in capability subclass VIIs noningated. The Delp soil is in range site 27-16, and the Lox soil is in range site 27-24.

232—Delp-Orizaba complex, 0 to 15 percent slopes. This map unit is on stabilized duries and lake plains. Elevation is 4,450 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Delp fine sand that has slopes of 0 to 15 percent and 30 percent Orizaba loam, drained, that has slopes of 0 to 2 percent. The Delp soil is on stabilized dunes, and the Orizaba soil is in interduna areas comprising old lake plains.

Included in this unit are about 5 percent Wabuska soils on old lake plains (range site 27-6) and 5 percent soide soils on back slopes of dunes (range site 27-16) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Deip soil is very deep and well drained. It formed in wind-deposited arkosic sand derived from granitic rock. Typically the surface layer is light gray fine sand about 5 inches thick. The subsoil is pale brown, stratified sandy foam and loamy sand about \$4 inches thick. The substratum to a depth of 60 inches or more is stratified sand and loamy fine sand.

Permeab ity of this Delp soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil

blowing is high.

The Orizaba soi is very deep and somewhat poorly drained. It formed in alluvial and facustrine deposits derived dominantly from various kinds of rock. Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying material to a depth of 60 inches or more is mottled very pale brown silty clay loam that has strata of loam and silt loam.

Permeability of this Orizaba soil is moderately slow Available water capacity is high. A seasonal high water table is at a depth of 72 inches or more in most months. Runoff is very slow or pended, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. The soil is slightly salt- and alkali-affected in the surface layer, and it is slightly or moderately salt- and alkali-affected be ow.

This unit is used mainly for livestock grazing, it is also used for wildlife habitat

The potential plant community on the Delp soil is mainly Indian neegrass, needleandthread, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly Bailey greasewood, black greasewood, shadscale, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the fine sandy texture of the surface layer.

The potential plant community on the Orizaba soil is mainly brack greasewood, Balley greasewood, shadscale and indian ricegrass. The present vegetation in most areas is mainly Bailey greasewood, black greasewood shadscale, and Indian neegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the slightly saline and alkal condition of the soil.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

When the Delp soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil browing. The Orizaba soil is limited for roads because of

low load-bearing capacity. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass V is, noningated. The Delp soil is in range site 26-16, and the Orizaba soil is in range site 27-24

233—Delp sand, 2 to 15 percent slopes. This very deep, well drained soil is on stabilized dunes. It formed in eolian sand that has a component of sift and diay that is high in content of sodium and calcium and is derived from granitic rock. Elevation is 4,550 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light gray sand about 5 inches thick. The subsoil is pale brown, stratified sandy loam and loamy sand about 14 inches thick. The substratum to a depth of 60 inches or more is stratified.

sand and loamy fine sand.

Included in this unit are about 10 percent Lox so is on alluvial lans between dunes (range site 27-24) and 5 percent Orizaba soils in small depressional areas (range site 26-12). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Delp soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used mainly for livestock grazing, it is also used for wildlife habitat

The potential plant community on this unit is mainly Indian ricegrass, needleandthread, black greasewood and hairy horsebrush. The present vegetation in most areas is mainly black greasewood, Indian ricegrass, littleleaf horsebrush, and hairy horsebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. During prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass V is, nonimgated, and in range site 27-16.

241—Devada-Rock outcrop complex, 4 to 15 percent slopes. This map unit is on roling hills. Elevation is 4,400 to 5,400 feet. The average annua precipitation is about 10 niches, the average annua at temperature is about 49 degrees F, and the average frost free period is 100 to 120 days.

This unit is 70 percent Devada very cobbly loam that has slopes of 4 to 15 percent and 15 percent Rock outcrop. The components of this unit are so intricately interming ed that it was not practical to map them separately at the scale used.

Included in this unit are about 7 percent Old Camp soils on the upper part of north-facing, concave side slopes (range site 26-22), 4 percent Cagle soils on north-and east-facing side slopes (pinyon woodland), and 4 percent Oppio soils on south- and west-facing side slopes (range site 25-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Devada soil is shallow and well drained. It formed in residuum derived dominantly from rhyolitic tuff and andesite. Typically, the surface layer is brown very cobbly loam about 4 inches thick. The subsoil is brown clay about 9 inches thick. Andesite is at a depth of 13 inches. Depth to bedrock ranges from 12 to 20 inches.

Permeability of this Devada soil is slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of andesite or rhyolitic tuff

This unit is used mainly for investock grazing and wild te habitat, it is also used as watershed.

The potential plant community on the Devada soë is mainly low sagebrush. Thurber needlegrass, and Canby buegrass. The present vegetation in most areas is mainly low sagebrush. Sandberg billingrass, and antelope bitterbrush. Juniper has invaded. The production of forage is limited by the low average annual precipitation, very low available water capacity, and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

The Devada soil is limited for roads because of the shallow depth to bedrock and low load-bearing capacity Roads should be designed to minimize cuts because of the limited depth to bedrock. Roads should be provided with a stable base and an adequate wearing surface Unless an adequate wearing surface is maintained, stones and cobbles in the soli create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, noningated. The Devada soil is in range site 26-23.

242—Devada-Rock outcrop association. This map unit is on hillsides. Elevation is 4,400 to 5,400 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost free period is 100 to 120 days.

This unit is 70 percent Devada very cobbly loam that has slopes of 15 to 50 percent and 15 percent Rock outcrop.

Included in this unit are about 9 percent Old Camp soils on the upper part of north-facing, concave side stopes (range site 26-22) and 6 percent Oppio soils on south- and west-facing piedmont stopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Devada soil is shallow and we drained it formed in residuum derived dominantly from andesite and rhyolitic tuff. Typically, the surface ayer is grayish brown very cobbly loam about 5 inches thick. The subsolitaverages gravelly clay that is brown. It is about 13 inches thick. Andesite is at a depth of 18 inches. Depth to bedrock ranges from 12 to 20 inches.

Permeability of this Devada soil is slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of so: blowing is 6, ght.

Rock outcrop consists of exposures of andesite and rhyolitic tuff

This unit is used mainly for livestock grazing and wildlife habitat. It is also used as watershed

The potential plant community on the Devada soil is mainly low sagebrush. Thurber needlegrass and Carby bluegrass. The present vegetation in most areas is mainly low sagebrush. Sandberg bluegrass, and antelope bitterbrush. The production of forage is limited by the low average annual precipitation, very low available water capacity, and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slops. Livestock grazing should be managed to protect the soil from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the soil to produce plants suitable for grazing.

The Devada soil is limited for roads because of slope shallow depth to bedrock, and low load-bearing capacity Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage, a stable base, and an adequate wearing surface. Erosion can be controlled and maintenance cost reduced by stablezing areas that have been disturbed.

The Devada soil is in capability subclass VIIe, noningated, and in range site 26-23.

251—Dia loam. This very deep, somewhat poorly drained soil is on alluvial flats and stream terraces. It formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual

precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown loam about 20 inches thick. The underlying material to a depth of 60 inches or more averages sand that is pale brown and light brown shi gray.

Included in this unit are about 6 percent Dithod soils that are medium textured throughout and are intermingled throughout the unit (range site 27-2), 5 percent East Fork soils that are moderately fine textured throughout (range site 27-2), and 4 percent Sagouspe soils in long, narrow, sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeab. Ity of this Dia soil is moderate to a depth of 20 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasona high water table that is at a depth of 3 to 5 feet from May through July. Bunoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay and pasture, it is also used for livestock grazing and homesite development

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, basin big sagebrush, rubber rabbitbrush, and western wheatgrass. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and western wheatgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table in summer and fall. The suitability of this unit for range and seeding is fair. The main limitation is wetness of the soil in spring and droughtness in summer and fall Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to ringated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of ringation water should be regulated to prevent a rise in the level of the water table. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Because of the limited depth to sandy material, cuts required for leveling is hould be less than 12 inches deep.

The main limitation for construction of dwellings is rare periods of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table, moderate permeability in the upper part of the soil, and madequate filtration of effluent in the lower part. Drainage or special design is needed because of the high water table. Absorption lines should be placed below the moderately permeable layer increasing the size of the absorption area helps to compensate for the restricted permeability. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for road construction because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses liw irrigated, and Viw, nonirrigated. It is in range site 27-2

252—Dia clay loam. This very deep, somewhat poorly drained soil is on alluvial flats and stream terraces. It formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown clay foam about 9 inches thick. The upper 15 inches of the underlying material is brown sandy loam stratified with silt loam and foam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand

Included in this unit are about 6 percent Dithod soils on low terraces (range site 27-2), 5 percent East Fork soils on low terraces (range site 27-2), and 4 percent Sagouspe soils in long, narrow, sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage vanes from one area to another.

Permeability of this Dia soil is moderately slow to a depth of 24 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July. Runoff is very slow and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for impated cultivated crops, hay, and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and western wheatgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table in summer and fail. The suitability of this unit for rangeland seeding is fair. The main imitation is

wetness of the soil in spring and droughtness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to imgated hay, pasture, and cu tivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. For the efficient application and removal of rrigation water, leveling is needed in sloping areas. Because of the limited depth to sandy material, cuts required for leveling should be less than 12 inches deep. Harvesting of root or tuber crops, such as garlic, orions, and potatoes, is hampered by the cloddiness of the clay oam surface ayer Specia equipment is needed to overcome this problem

The main imitation for construction of dwellings is rare periods of flooding. Flooding can be controlled only by

use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table, moderately slow permeability in the upper part of the soil, and inadequate filtration of effluent in the lower part. Dramage or special design is needed because of the high water table. Absorption lines should be placed below the moderately slowly permeable layer. Increasing the size of the absorption area helps to compensate for the restricted permeability. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for road construction because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses liw, imgated, and Viw, nonimgated. It is in range site 27-2

253—Dia clay loam, wet. This very deep, somewhat poorly drained soil is on flood plains and low stream terraces in shallow depressional areas and abandoned channels. The drainage has been altered as a result of seepage from canals and impation in higher lying areas. The soil formed in a livium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free pence is 100 to 130 days.

Typically, the surface layer is grayish brown clay toam about 9 inches thick. The upper 10 inches of the underlying material is brown, stratified sandy loam to silty clay loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Included in this unit are about 10 percent Dithod soils that are wet and are on low terraces (range site 27.4) and 5 percent Femley soils in sand filled stream channels (range site 27.4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Dia soil is moderately slow to a depth of 19 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1 to 2 feet from March through June. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing and meadow hay and pasture.

The potential plant community on this unit is mainly rushes, sedges, tufted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly rushes sedges, and meadow barley. The production of forage is limited by the lowering of the water table, ate in summer and in fall. The suitability of this unit for rangeland seeding is poor. The main limitation is wetness of the soil in spring and early in summer. Plants that are tolerant of wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to imgated hay and pasture Wetness limits the choice of plants and the period of cutting or grazing and increases the risk of winterkill imgation water can be applied by the border and corrugation methods. Leveling helps to insure the

Uniform application of water

This unit is limited for roads because of a severe hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IVw, irrigated, and Vw, noningated. It is in range site 27-4.

254—Dia-Dithod complex. This map unit is on all uvia flats and low stream terraces. The drainage has been altered as a result of seepage from canals and irrigation in higher lying areas. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 35 percent Dia clay loam, wet, 30 percent Dithod clay loam, wet, and 20 percent Dithod loam, saline-alkali. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 9 percent Fem ey soils in filled stream channels and sloughs (range site 27-4) and 6 percent East Fork soils that are well and are

Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Dia clay loam, wet, is very deep and somewhat poorly drained. It formed in loamy alluvium derived dominantly from basic igneous and granitic rocks. Typically, the surface layer is grayish brown clay loam about 9 inches thick. The upper 10 inches of the underlying material is brown sandy loam stratified with sift oam and loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Permeable ty of the Dia soil is moderately slow to a depth of 19 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1 to 2 feet from March through June. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Dithod clay loam, wet is very deep and somewhat poorly drained. It formed in loamy alluvium derived dominantly from basic igneous and granitic rocks. Typically the surface layer is grayish brown clay loam about 11 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray and pale brown, mottled, stratified loam to loamy fine sand.

Permeability of this Dithod soil is moderately slow Available water capacity is high. Effective rooling depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The D thod loam, so ne-alkali, is very deep and somewhat poorly drained. It formed in loamy alluvium derived dominantly from basic igneous and granitic rocks. Typically, the surface layer is grayish brown foam about 11 inches thick. The underlying material to a depth of 60 inches is stratified, light brownish gray and pale brown, mottled silt loam to loamy fine sand.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is imited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September Bunoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately or strongly salt, and alkali-affected in the surface layer. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

Most areas of this unit are used for livestock grazing. A few areas are used for imigated pasture. The unit can

be used for imgated cultivated crops if the toxic saits in the Dithod loam, saline-alkali, are eached and drainage is provided.

The potential plant community on the Dia clay loam, wet, and Dithod clay loam, wet, is mainly rushes, sedges, tuited hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly rushes, sedges, and meadow barley. The production of forage is limited by the drop in the level of the water table late in summer and in fall. The suitability of these soils for rangeland seeding is poor. The main limitation is wetness of the soil in spring and early in summer.

The potential plant community on the Dithod loam, saline-alkali, is mainly alkali sacaton, inland saltgrass, basin wildrye, and black greasewood. The present vegetation in most areas is mainly in and saltgrass black greasewood, and rubber rabbitbrush. The production of forage is limited by the saline and alkali condition of the Dithod soil and the drop in the level of the water table late in summer and in fall. The suitability of these soils for rangeland seeding is very poor. The main limitation is the saline and alkali condition of the surface layer of the Dithod soil.

Seeding of large areas of the more favorable Dia diay loam, wel, and Dithod day loam, wel, in this unit is difficult because of the pattern in which they occur with areas of the less favorable Dithod loam, so ne-alka Plants that tolerate wetness should be seeded. Grazing should be delayed until the soils have drained sufficiently and are firm enough to withstand trampling by investock

If this unit is used for hay and pasture, the main limitations are the high water table and the saline and alkali condition of the Dithod foam, saline-aikali. The rate of application of impation water should be regulated to prevent a use in the level of the water table. The content of salls and alkali can be reduced by using solumendments such as gypsum, by leaching, and by carefully applying impation water. It is difficult to provide deep drainage of these soils because of their low position and the lack of grade to an outlet, frigation water can be applied by the border and corrugation methods. Leveling helps to insure the uniform application of water.

This unit is limited for roads because of a severe hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses. Vw, imgated, and Vw, nonirrigated. The Dia clay loam, wet is in range site 27-4. The Dithod clay loam, wet, is in range site 27-4. The Dithod loam, salme-alkab, is in range site 27-5.

255—Dia-Dithod complex, ponded. This map unit is on old flood plains and alluvial flats. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Dia loam, ponded, and 40 percent Dithod clay loam, ponded. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

included in this unit are about 10 percent Fernley soils that are in sand-filed stream channels and are scattered throughout the unit included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Dialloam is very deep and somewhat poorly drained lit formed in alluvial and lacustime material derived from various kinds of rock. Typically, the surface layer is grayish brown loam about 19 inches thick. The upper 5 inches of the underlying material is brown light sandy loam stratified with silt loam and silty clay loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Permeability of the Dia soil is moderately slow to a depth of 24 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is mitted by a seasonal high water table that is at a depth of 2 to 3 feet from May through July Runoff is ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The floodwater on this soil is artificially controlled to pond it on the surface throughout the year.

The Dithod soil is very deep and somewhat poorly drained it formed in alluvial and lacustrine material derived from various kinds of rock. Typically, the surface layer is grayish brown clay loam about 11 inches thick. The upper 9 inches of the underlying material is light brownish gray, mottled silt loam, and the lower part to a depth of 60 inches or more is grayish brown to pale brown silt loam to loamy fine sand.

Permeability of the Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a high water table that is at a depth of 2 to 3 feet throughout the year. Runoff is ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The floodwater on this soil is artificially control ed to pond it on the surface throughout the year.

This unit is used for wetland wildlife habitat From March to November, food and cover for waterfowl are produced by ponding water on the unit using a system of dikes and levees. During the rest of the year the water table is lowered to prepare seedbeds for planting milet and alkali bulrush, which provide food for wildlife.

This unit is limited for roads because of a hazard of frost heaving and susceptibility to ponding. Roads and streets should be located above the expected flood level. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclass Vw, nonirrigated It is in range site 27-1

256—Dia-Sagouspe complex. This map unit is on alluvial flats and stream terraces. Slope is 6 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 40 percent Dia loam, 30 percent Sagouspe sandy loam, and 20 percent Sagouspe loamy sand. The components of this unit are so introately interming ed that it was not practical to map them separately at the scale used.

Included in this unit are about 6 percent Dithod soils (range site 27-2) and 4 percent East Fork soils (range site 27-2) intermingled throughout the unit. included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Dia soil is very deep and somewhat poorly drained. It formed in alluvial and facustrine material derived from various kinds of rock. Typically the surface layer is grayish brown toam about 18 inches thick. The upper 5 inches of the underlying material is brown sandy loam stratified with silt toam and loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Permeability of the Dia soil is moderately slow in the upper part and rapid in the lower part. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity stoms. Channeling and deposition are common along streambanks.

The Sagouspe sandy loam is very deep and somewhat poorly drained. It formed in sandy a wivium derived dominantly from granitic rock. Typically the surface eyer is fight gray sandy loam about 16 inches thick. The underlying material to a depth of 60 inches or more is brownish gray sand stratified with loamy sand and sit loam.

Permeability of the Sagouspe sandy loam is moderately rapid. Available water capacity is low Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 3.5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of so blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Sagouspe loamy sand is very deep and somewhat poorly drained. It formed in sandy alluvium derived dominantly from granitic rock. Typically, the surface layer is light gray loamy sand about 16 inches thick. The underlying material to a depth of 60 inches or more is brownish gray sand stratified with loamy sand and silt loam.

Permeability of the Sagouspe loamy sand is rapid Available water capacity is low. Effective rooting depth is mited by a seasonal high water table that is at a depth of 3 to 3.5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated pasture and livestock grazing

The potential prant community on this unit is mainly creeping wildrye basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and western wheatgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table ate in summer and in fail. The suitable ty of this unit for range and seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be derayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

If this unit is used for hay and pasture, the main mitalions are the seasonal high water table and the hazard of soil blowing on the Sagouspe loamy sand, rrigation water can be applied by the border, corrugation, and sprinkler methods. Leveling helps to insure the uniform application of water. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. It is difficult to provide deep drainage of the soils in this unit because of the rilow position and the lack of grade to an outlet.

The Dia soil is mitted for roads because of a severe hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. If surface drainage and a stable base are provided, damage from frost heaving is minimized on the Sagouspe so is

This map unit is in capability subclasses lillw, imgated, and V w, nonimgated. It is in range site 27-2.

261—Dithod loam. This very deep, somewhat poorly drained soli is on stream terraces and alluvial flats. It formed in a unium derived from various kinds of rock Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface tayer is grayish brown loam about 11 inches thick. The upper 9 inches of the underlying material is light brownish gray, mottled silt oam, and the lower part to a depth of 60 inches or more is stratified, grayish brown to pale brown, mottled silt oam to sandy clay loam.

Included in this unit are about 8 percent Sagouspe soils in meandering sand-filled stream channels (range site 27.2), 4 percent Dia soils that have a sandy substratum (range site 27-2), and 3 percent East Fork soils that are moderately fine textured to a depth of 60 inches or more (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dithod soil is moderately slow Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from December through August. Runoff is slow, and the hazard of water erosion is sight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity stoms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and hay. It is also used for livestock grazing and homesite development

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly creeping wildrye, basin wildrye, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main unitations are wetness of the soil in spring and droughtness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow border corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses the imgated, and Viw, nonirrigated, it is in range site 27-2.

262—Dithod loam, clay substratum. This very deep, somewhat poorly drained soil is on stream terraces and alluvia flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 notes, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically the surface layer is grayish brown loam about 11 inches thick. The upper 29 inches of the underlying material is stratified loam to silt loam, and the lower part to a depth of 60 inches or more is clay loam or silty clay loam, in some areas the surface layer is silt.

oam or clay loam

Included in this unit are about 6 percent Sagouspe soils in meandering sand-filled stream channels (range site 27-2), 3 percent Dia soils that have a sandy substratum (range 27-2), and 6 percent East Fork soils that are moderately fine textured to a depth of 40 inches or more (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Dithod soil is moderately slow Aval able water capacity is high. Effective rooting depth is mited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and hay and pasture, it is also used for livestock grazing

and homesite development.

The potential plant community on this unit is mainly creeping widrye basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly creeping wildrye. Nevada bluegrass, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table ate in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand tramping by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the

crop grown. The rate of application of impation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only

by use of major flood control structures

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Special design is needed for septic tank absorption fields to avoid contaminating the ground water or raising the level of the water table. Use of sandy backfill for the trench and long absorption hes helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the potential for frost action. Local roads and streets may require a

special base to avoid frost heave damage.

This map unit is in capability subclasses I w. irrigated and VIw. nonirrigated. It is in range site 27-2.

263—Dithod clay loam, wet. This very deep somewhat poorly drained soil is on low stream terraces and alluvial flats. The drainage has been altered as a result of seepage from canais and excessive irrigation in higher lying areas. The soil formed in a luvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown clay loam about 11 inches thick. The underlying material to a depth of 60 inches or more is light brown shigray, motted.

stratified silt loam to loamy fine sand

Included in this unit are about 10 percent Sagouspe soils that are wet and are in meandering sand-filled stream channels (range site 27-4) and 5 percent Dia soils that are wet and have a sandy substratum (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Dithod soil is moderately slow Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September Runoff is very slow, and the hazard of water erosion is saight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity stoms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated pasture and livestock grazing. It is also used for irrigated cultivated crops and homesite development

The potential plant community on this unit is mainly rushes, sedges, tufted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly creeping

widrye, sedges, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is fair. The main limitation is wetness of the soli in spring. Plants that tolerate wetness should be seeded. Grazing should be detayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is poorly suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high intensity of storms of long duration. Flooding can be controlled only

by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasona, high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is mited for roads because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IVw, imigated, and VIw nonimigated. It is in range site 27-4

264—Dithod loam, saline-alkall. This very deep, somewhat poorly drained soil is on low stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically the surface layer is grayish brown loam about 11 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, stratified,

mottled silt loam to loamy fine sand

ncluded in this unit are about 5 percent East Fork soils that are saline and alkali and are moderately fine textured to a depth of 40 inches or more (range site 27-5), 5 percent Dia soils that are wet and have a sandy substratum (range site 27-4), and 5 percent Sagouspe soils that are saline and alkali and are in meandering sand-filled stream channels (range site 27-5). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dithod soil is moderately slow.

Avaiable water capacity is high. Effective rooting depth.

is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is sight. This soil is strongly sait- and alkali-affected to a depth of 1.1 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for imgated pasture, it is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly alkali sacaton, inland saltgrass black greasewood, and basin wildrye. The present vegetation in most areas is mainly inland saltgrass, black greasewood, rubber rabbitbrush, and alkali sacaton. The production of forage is limited by the content of salts and alkali in the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main limitations are the content of salts and alkal in the suiface layer and wetness of the soil. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is poorly suited to hay and pasture. The main limitations are the high content of saits and a kalcin the surface tayer and the high water table. Excessive water on the surface can be removed by surface drains. The content of saits and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water, Irrigation water can be applied by the border and sprinkler methods. Leveling helps to insure the uniform application of water.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the high water table and the moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses VIw, migated and VIIw, nonimigated. It is in range site 27-5

265—Dithod clay loam. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown clay loam about 11 inches thick. The upper 9 inches of the underlying material is light brownish gray, mottled silt loam, and the lower part to a depth of 60 inches or more s stratified, grayish brown to pale brown loars to sandy loam

ncluded in this unit are about 6 percent Sagouspe. soris in meandering sand-filled stream channels (range site 27-2) 5 percent East Fork soils that are moderately fine textured to a depth of 40 inches or more (range site 27-2), and 4 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Dithod soil is moderately slow Ava. able water capacity is high. Effective rooting depth is mited by a seasonal high water table that is at a depth of 3 to 5 feet from December through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks

This unit is used mainly for irrigated cultivated crops. hay and pasture. It is also used for livestock grazing and homesite development

The potential plant community on this unit is mainly creeping wildrye basin wildrye, western wheatgrass, bas n big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly creeping wildrye basin wildrye, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table ate in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand tramping by Ivestock

This unit is we! suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas. where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to this unit. The method used generally is governed by the crop grown. The rate of application of imgation water should be regulated to prevent a rise in the level of the water table. For the efficient application and removal of irrigation water, leveling is needed in stoping areas. Harvesting of root or tuber crops, such as gartic, onions, and potatoes, is hampered by the cloddiness of the clay loam surface layer. Special equipment is needed to overcome this problem.

The main limitation for construction of dwellings on this unit is the hazerd of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Special design is needed for septic tank absorption helds to avoid contaminating the ground water or raising the level of the water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability

This unit is limited for road location because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage

This map unit is in capability subclasses ilw, imgated and Viw, nonirrigated. It is in range site 27-2

268-Dithod clay loam, wet, saline-alkall. This very deep, somewhat poorly drained soil is on low stream terraces and atluvia; flats, it formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown clay loam about 11 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, mottled,

stratified silt joam to loamy fine sand

Included in this unit are about 8 percent Sagouspe. soils in sand-filled stream channels (range site 27-2), 4 percent Dia soils that are sandy below a depth of about 24 inches (range site 27-2), and 3 percent East Fork soils that are moderately fine textured to a depth of 40 vinches or more (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Dithod soil is moderately slow Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly salt- and alkati-affected to a depth of 11 inches This soil is subject to flooding during prolonged, highintensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for impated pasture. It is a so used for livestock grazing and homesite development.

The potential plant community on this unit is mainly alkalı sacaton, ınland saitgrass, basın wildiye, and biack greasewood. The present vegetation in most areas is mainly inlarid saitgrass, black greasewood, rubber rabbitbrush, and alkali sacaton. The production of forage is limited by the content of salts and a kali in the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangetand seeding is very poor. The main

mitations are the content of salts and alkali in the surface layer and wetness of the soil in spring

This unit is poorly suited to hay and pasture. The main imitations are the high content of salts and alkali in the surface layer and the high water table. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water Irrigation water can be applied by the border and sprinkler methods. Leveling he ps to insure the uniform application of water

The main mitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the high water table and the moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses VIw, irrigated, and VIIw inonirrigated, it is in range site 27-5

269—Dithod-Sagouspe-Dia complex. This map unit is on stream terraces and alluvial flats. Slopes are 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 30 percent Dithod loam, 30 percent Sagouspe sandy loam, and 30 percent Dia loam. The Dithod and Dia so is are in the higher lying areas of stream terraces and alluvial flats, and the Sagouspe soil is in long, narrow, winding, sand-filled channels of stream terraces and a luvial flats. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

nouded in this unit are about 10 percent East Fork soils in sediment-filled old oxbows (range site 27-2) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Dithod soil is very deep and somewhat poorly drained. It formed in alluvium derived from various kinds of rock. Typically the surface layer is grayish brown loam about 11 inches thick. The upper 9 inches of the underlying material is light brownish gray, mottled sittleam and the lower part to a depth of 60 inches or more is stratified grayish brown to pale brown, mottled loam to sandy loam.

Permeability of the Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from December through August.

Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soi is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Sagouspe soil is very deep and somewhat poorly drained. It formed in sandy alluvium derived from various kinds of rock. Typically the surface ayer is light gray to pale brown sandy loam about 16 inches thick. The underlying material to a depth of 60 inches or more slight brownish gray loamy sand with fine strate of oam and sandy loam.

Permeability of the Sagouspe soil is rapid. Available water capacity is low. Effective rooting depth is imited by a seasonal high water table that is at a depth of 3.0 to 3.5 feet from February through August, Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is aubject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Dia soil is very deep and somewhat poorly drained. It formed in ailuvium derived from various kinds of rock. Typically, the surface layer is grayish brown loam about 5 inches thick. The upper 24 inches of the underlying material is stratified, grayish brown and light brownish gray sandy loam to loam, and the lower part to a depth of 60 inches or more is pare brown sand.

Permeability of the Dia soil is moderately slow to a depth of about 29 inches and rapid below this depth Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.0 to 5.0 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated crops. It is a so used for livestock grazing and homesite development

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly basin big sagebrush, creeping wildrye, and Nevada biulegrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table tate in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and drought hess atein summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

The Dithod and Dia soils are well suited to imgated crops. The Dia soil is limited mainly by the moderate available water capacity. Deep-rooted crops are suited to

areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprink or impation systems are suited to these soils. The method used generally is governed by the crop grown. The rate of application of impation water should be regulated to prevent a rise in the level of the water table.

The Sagouspe soil is suited to imgated crops. It is limited mainly by the low available water capacity. Deeprooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rapid movement of water in the upper part of the soil should be considered when selecting the imgation method or design. The method used generally is governed by the crop grown. The rate of application of imgation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only

by use of major flood control structures.

The main imitations for septic tank absorption fields are the seasonal high water table, the moderately slow permeability of the Dithod and Dia soils, and the rapid permeability of the Sagouspe soil. Drainage or special design is needed because of the high water table. Use of sandy backful for the trench and long absorption lines heips to compensate for the moderately slow permeability of the Dithod and Dia soils. Because the Sagouspe soil is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is imited for road location because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. Unless surface drainage is provided on the Sagouspe so , excess water accumulates and roads are damaged.

by frost heaving

This map unit is in capability subclasses liw, imgated, and VIw, noningated. It is in range site 27-2.

271—East Fork toam. This very deep, somewhat poorly drained so, is on stream terraces and alluvial flats. It formed in a luvium derived from vanous kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees. Fland the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 14 inches thick. The underlying material to a depth of 60 inches or more is stratified, gray and light brownish

gray, mottled loam to silty clay loam.

Included in this unit are about 7 percent Dithod soils that are medium textured (range site 27.2), 5 percent Sagouspe soils in sand-filled stream channels (range site 27.2) and 3 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up

about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this East Fork soil is moderately slow Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from December through May Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for imgated cultivated crops, hay, and pasture. It is also used for livestock grazing and

homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and creeping wildrye. The production of forage is I mited by the low average annual precipitation and the drop in the level of the water table late in summer. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is fair. The main lamitations are wetness of the soil in apring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and a firm enough to withstand trampling by livestock.

This unit is well suited to impated hay pasture and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of impation water should be regulated to prevent a rise in the level of the

water table.

The main limitation for construction of dwe lings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only

by use of major flood control structures

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backful for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the hazard of frost heaving and low soil strength. Roads should be provided with a stable base and an adequate

wearing surface.

This map unit is in capability subclasses liw, imgated, and VIw, nonimigated. It is in range site 27-2.

272—East Fork loam, occasionally flooded. This very deep, somewhat poorly drained soil is on stream terraces and altivial flats. It formed in allivium derived

from various kinds of rock. Slope is 0 to 2 percent E evation is 4,200 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is grayish brown loam about 14 inches thick. The underlying material to a depth of 50 inches or more is stratified, gray and light brownish.

gray, mottled sandy clay loam to clay loam.

nctuded in this unit are about 7 percent Fallon soils on ow stream terraces (range site 27-2), 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2), and 3 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this East Fork soil is moderately slow Ava able water capacity is high. Effective rooting depth is mitted by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from May through June. Bunoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional brief periods of flooding in April through June.

This unit is used mainly for irrigated cultivated crops, hay and pasture. It is also used for livestock grazing and

homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and creeping wildrye. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is tair. The main imitations are wetness of the soil in spring and droughtness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is irrited mainly by the seasonal high water table and occasional periods of flooding. Deeprooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The risk of flooding can be reduced by the use of dikes and levees. Furrow, border, corrugation, and sprink or irrigation systems are suited to this unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is occasional periods of flooding during highntensity storms of long duration. Flooding can be controlled only by use of major flood control structures. The main limitations for septic tank absorption fields are the hazard of flooding, the seasonal high water table, and moderately slow permeability. Orange or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorpt on lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the hazards of flooding and frost heaving and low so strength. Roads should be provided with a stable base

and an adequate wearing surface

This map unit is in capability subclasses, lw, irrigated and Viw. nonringated. It is in range site 27-2.

274—East Fork clay loam. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees. F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown clay foam about 14 inches thick. The underlying material to a depth of 60 inches or more is stratified, gray and light brown ships.

gray, mottled sand to sety clay

Included in this unit are about 7 percent Dithod so a that are medium textured (range site 27-2), 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2), and 3 percent Dia soils that have a sandy substratum (range site 27-2), included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this East Fork soil a moderatery slow Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from December through May Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops hay, and pasture. It is also used for livestock grazing and homesite development

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, creeping wildrye and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness in summer and fall. Plants that to erate wetness should be seeded. Grazing should be delayed.

until the sor has drained sufficiently and is firm enough

to withstand tramping by livestock

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas. where the natural drainage is adequate or where a dra hage system has been installed. Harvesting of root or tuber crops, such as garlic, onions, and potatoes, is hampered by the cloddiness of the clay loam surface layer. Special equipment is needed to overcome this problem. Furrow, border, corrugation, and sprinkler. rrigation systems are suited to this unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only

by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backful for the trench and long absorption lines helps to compensate for the moderately slow permeability

This unit is limited for road location because of the hazard of frost heaving and low soil strength. Roads should be provided with a stable base and an adequate

wearing surface.

This map unit is in capability subclasses liw, irrigated. and Viw, nonirrigated, it is in range site 27-2.

275—East Fork clay loam, saline-alkall. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats, It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown clay loam about 14 nches thick. The underlying material to a depth of 80 inches or more is stratified, gray and light brownish

gray, mottled loam to silty diay loam.

included in this unit are about 6 percent Dithod soils that are saline and a kali and are medium textured (range site 27-5), 6 percent Sagouspe soils that are saine and alkali and are in sand-filled channels (range site 27-5), and 4 percent Dia soils that are wet and have a sandy substratum (range site 27-4) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this East Fork soil is moderately slow Available water capacity is high. Effective rooting depth is imited by a seasonal high water table that is at a depth of 3 to 5 feet from April through July Rumoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly saltand alkali-affected to a depth of 14 inches. This soulis subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks

This unit is used mainly for livestock grazing and homesite development. The unit can be used for imgated cultivated crops, hay, and pasture if the soil is

The potential plant community on this unit is mainly inland saitgrass, alkali sacaton, creeping wildrye, and black greasewood. The present vegetation in most areas is mainly black greasewood, inland saftgrass, and rubber rabbitbrush. The production of forage is imited by the content of salts and alkali in the surface layer, the drop in the level of the water table ate in summer and the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the content of saits and alkali in the surface layer. Grazing should be de ayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major

flood control structures

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines he ps to compensate for the moderately slow permeability

This unit is limited for roads because of the hazard of frost heaving and low soil strength. Roads should be provided with a stable base and an adequate wearing

surface

This map unit is in capability subclasses flw irrigated. and Vilw, noningated, It is in range site 27-5.

276—East Fork clay loam, clay substratum. This very deep, somewhat poorly drained soil is on stream. terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days

Typically, the surface layer is grayish brown clay loam about 8 inches thick. The upper 32 inches of the underlying material is light brownish gray, mottled clay toam, and the lower part to a depth of 60 inches or more is light brownish gray and gray, mottled and gleyed sity

clay and clay

Included in this unit are about 6 percent Dithod soils that are medium textured (range site 27-2) 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2), and 4 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up

about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this East Fork soil is moderately slow to a depth of 40 inches and slow below this depth Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through July Runoff is very slow, and the hazard of water erosion is slight. The hazard of sor blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks

This unit is used mainly for imgated cultivated crops, hay, and pasture, it is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly creeping wildrye, basin big sagebrush. and rubber rabbitbrush. The production of forage is amited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main imitations are wetness of the soil in spring. and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed. unt, the soft has drained sufficiently and is firm enough. to withstand trampling by livestock

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas. where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of imigation water should be regulated to prevent a rise in the level of the water table

The main mitation for construction of dwellings is the hazard of flooding during high-intensity storms of long. duration. Flooding can be controlled only by use of major flood control structures

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage of special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability

This unit is limited for roads because of the hazard of frost heaving and low so: strength. Roads should be provided with a stable base and an adequate wearing

This map unit is it capability subclasses liw, irrigated, and viw, nonirrigated. It is in range site 27-2.

277-East Fork gravelly clay loam. This very deep, somewhat poorly drained soo is on stream terraces and a uvial flats. It formed in alluvium derived from various.

kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300. to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50. degrees F, and the average frost-free period is 100 to †20 days.

Typically, the surface layer is gravish brown gravely clay loam about 14 inches thick. The underlying material to a depth of 60 inches or more is stratified, gray and light brownish gray, mothed loam to clay roam

Included in this unit are about 10 percent Dithod so is that have a sandy substratum (range site 27-2) and 5 percent Charlebois soils on stream terraces (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this East Fork soil is moderately slow Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from December through May Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms Channeling and deposition are common along streambanks.

This unit is used mainly for impated ou tryated crops. hay, and pastue. It is also used for itvestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, creeping wildrye, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be de ayed until the soil has drained sufficiently and is firm enough. to withstand trampling by Irvestock

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Harvesting of root or tuber crops, such as garke, onlons, and potatoes, is hampered by the cloddiness of the gravely clay loam. surface layer. Special equipment is needed to overcome this problem. Furrow, border, corrugation, and sprink erimpation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main fimitation for construction of dwellings is the hazard of flooding during high-intensity storms of longduration. Flooding can be controlled only by use of major flood control structures

The main imitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the hazard of frost heaving and low so: strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses liw, irrigated, and VIw, nonirrigated. It is in range site 27-2

291—Fallon sand. This very deep, somewhat poorly drained soil is on stream terraces. It formed in alluvium derived dominantly from andesite, basalt, and granite. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown sand about 10 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, stratified loam, slit loam, fine sandy oam, loamy sand, and sand and is mottled in the lower part.

ncluded in this unit are about 5 percent Isolde soils on stabilized dunes (range site 27-23), 3 percent Dia soils in old filled oxbows (range site 27-2), and 2 percent Sagouspe soils in sand-1 led stream channels (range site 27-2) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Fallon soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September. Runoff is very slow, and the hazard of water erosion is sight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for imgated cultivated crops, hay, and pasture, it is also used for livestock grazing.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly rubber rabbitbrush, inland saftgrass, and siver buffaloberry. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in tall. The suitability of this unit for rangeland seeding is very poor. The main limitation is the sandy texture of the surface layer. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to impated hay pasture and cultivated crops. It is limited mainly by the sandy texture of the surface layer. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rapid movement of water in the upper part of the soil should be considered when selecting the imagation method or design. The rate of application of imagation water should be regulated to prevent a rise in the level of the water table.

This unit is limited for roads because of the hazard of frost heaving. Roads should be provided with a stable base and an adequate wearing surface. When the sandy surface layer is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor fraction and an increased risk of sor blowing

This map unit is in capability subclasses III, irrigated, and VIII, ponimigated. It is in range site 27-2.

292—Fallon fine sandy loam. This very deep somewhat poorly drained soil is on stream terraces. It formed in alluvium derived dominantly from andesite, basalt, and granite. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown fine sandy loam about 10 inches thick. The underlying materia to a depth of 60 inches or more is light brownish gray and light gray, stratified loam, silt loam, line sandy loam, loamy sand, and sand and is mottled in the lower part

included in this unit are about 7 percent Dithod soils that are saline and aixali and are on stream terraces (range site 27-5) and 3 percent Sagouspe soils that are saline and aixali and are in old oxbows and in sand-1 ed stream channels (range site 27-5) Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Fallon soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is a ght. This soil is slightly salt- and alkali-affected in the surface layer. It is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing, it can be used for impated pasture and cultivated crops if it is protected from flooding.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly rubber rabbitbrush, inland saltgrass, silver buffaloberry, and basin big sagebrush. The production of

forage is imited by the low average annual precipitation and the drop in the level of the water table fate in summer and in fall. The suitability of this unit for rangerand seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand tramping by investock.

This unit is well suited to impated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler impation systems are suited to the unit impation water must be carefully applied to avoid raising the water table and increasing the concentration of salts and alkali in the soil

This unit is limited for roads because of the hazard of frost heaving. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses liw, imigated, and V tw, noningated, it is in range site 27-2.

293—Fallon fine sandy loam, frequently flooded. This very deep, somewhat poorly drained soil is on long, narrow stream terraces adjacent to the Walker and Carson Rivers. It formed in all uvium derived dominantly from andes to basalt, and granite. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically the surface layer is paie brown fine sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, stratfied loam, sit loam, fine sandy loam, loamy sand, and sand and is mottled in the lower part.

ncluded in this unit are about 6 percent Sagouspe soils in sand-filed stream channels (range site 27-2) and about 4 percent Dithod soils in filled oxbows and stream terraces (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fallon soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to frequent brief periods of flooding in March through November.

This unit is used for livestock grazing, it can be used for irrigated pasture and cultivated crops if it is protected from flooding.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most

areas is mainly basin big sagebrush, mand sa tgrass and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table rate in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of the hazard of trost heaving and frequent periods of flooding. Roads should be provided with a stable base and an adequate wearing surface. Roads and streets should be located above the expected flood level.

This map unit is in capability subclasses illw, rrigated and Vtw, noningeted. It is in range site 27-2

294—Fallon fine sandy loam, saline-alkali. This very deep, somewhat poorly drained soil is on stream terraces. It formed in allowium derived dominantly from andesite, basalt, and granite. Slope is 0 to 2 percent Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown fine sandy loam about 10 inches thick. The underlying materia to a depth of 60 inches or more is light brownish gray stratified loam to sand and is most ad in the lower part.

Included in this unit are about 5 percent Wabuska so s that are on older terraces (range site 27-6) and 5 percent Orizaba soils on stream terraces (range site 26-12). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Fation soil is moderately rapid Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkali-affected in the surface layer and it is nonsaline and nonalkali or slightly salt- and alkali-affected below. The soil is subject to flooding during prolonged high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for pasture and fivestock grazing. The unit can be used for imgated cultivated crops if the content of saits and alkali is reduced.

The potential plant community on this unit is mainly alkali sacaton, inland saltgrass, creeping wildrye, and black greasewood. The present vegetation in most areas is mainly inland saltgrass, rubber rabbilitrish, black greasewood, and extinebush. The production of forage is smited by the content of salts and alkali in the surface layer, the low average annual precipitation, and the drop

in the evel of the water table late in summer and in fall. The sultability of this unit for rangeland seeding is very poor. The main limitation is the content of salts and alka in the surface layer. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is suited to irrigated hay and pasture. The concentration of saits and alkali in the surface layer mits the production of plants suitable for hay and pasture. Leaching the saits from the surface layer is mitted by the high water table. Drainage and irrigation water management reduce the concentration of salts. Salt-tolerant species are most suitable for planting.

This unit is limited for roads because of the hazard of frost heaving. Roads should be provided with a stable base and an adequate wearing surface

This map unit is in capability subclasses like, irrigated, and Ville, nonirrigated, it is in range site 27-5.

295—Falton sandy loam, ponded. This very deep, somewhat poorly drained soil is on stream terraces. It formed in alluvium derived dominantly from andesite, basait, and granite. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 nones, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically the surface layer is pale brown sandy loam about 10 inches thick. The underlying material to a depth of 80 inches or more is light brownish gray, stratified loam to sand and is mottled in the lower part.

included in this unit are about 10 percent Dia soils that are pended and are in sand-filled stream channels

Permeability of this Fallon soil is moderately rapid Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September Runoff is ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The floodwater on this soil is artificially controlled to pond it on the surface from March to November.

This unit is used for wetland wildlife habitat. From March to November, food and cover for waterfowl are produced on this unit by ponding water on it using a system of dikes and levees. During the rest of the year the water table is lowered to prepare seedbeds for planting millet and alkali bulrush, which provide food for wild fe.

This unit is limited for roads because of the hazards of frost heaving and flooding. Local roads and streets may require a special base to avoid frost heave damage. Roads and streets should be located above the expected flood level.

This map unit is in capability subclass Vw, nonirrigated. It is in range site 27-1

301—Fernley loamy sand. This very deep, poorly drained soil is in sand-filled channels and basins on low stream terraces. It formed in sandy a uvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost free period is 100 to 120 days.

Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray motified sand.

Included in this unit are about 5 percent Dia soils on low terraces (range site 27-2) and 5 percent Dithod soils on stream terraces (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Ferniey soil is very rapid. Available water capacity is low. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2 to 4 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing. It can be used for impated hay, pasture, and cultivated crops if water is made available and the water table is lowered.

The potential plant community on this unit is mainly tufted hairgrass. Nevada bluegrass, rushes, and sedges. The present vegetation in most areas is mainly rubber rabbitbrush, willows, and sedges. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table in fall. The suitability of this soil for rangeland seeding is very poor. The main limitations are the sandy texture of the surface layer and the low average annual precipitation.

This unit is limited for roads because of the seasonal high water table, the hazard of flooding during high-intensity storms of long duration, and a moderate hazard of frost heaving. Drainage is needed for the construction of roads. Flooding can be controlled only by use of major flood control structures. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclasses IVw, ingated and VIIw, nonirrigated. It is in range site 27-4

302—Fernley loamy sand, drained. This very deep poorly drained soil is in sand-filled channels and basins on low stream terraces. It formed in all usum derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, mottled sand.

Included in this unit are about 5 percent Dia soils on low terraces (range site 27.2) and 5 percent Dithod soils on stream terraces (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fernley soil is very rapid. Available water capacity is low. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing, irrigated crops, and homesite development

The potential plant community on this unit is mainly creeping wildrye basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly rubber rabbitbrush, inland sattgrass, and black greasewood. The production of forage is limited by the low average annual precipitation, the low available water capacity, and the lowering of the water table in fall. The suitability of this unit for rangeland seeding is very poor. The main limitations are the sandy surface ager and the low average annual precipitation.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the sandy surface ayer and low available water capacity. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main mitations for septic tank absorption fields are the seasonal high water table and very rapid permeability. Drainage or special design is needed because of the high water table. Because the soil is very rapidly permeable, special design may be needed to avoid polluting ground water or nearby water supplies.

This unit is limited for roads because of the hazards of flooding and frost heaving. If surface drainage and a stable base are provided, damage from frost heaving can be minimized.

This map unit is in capability subclasses IVw, imigated, and VI w, nonimgated. It is in range site 27.2

311-Fulstone cobbly loam, 2 to 8 percent slopes.

This shallow, well drained soil is on alluvial fan remnants it formed in alluvium derived dominantly from igneous and metamorphic rocks. Elevation is 4,400 to 6,000 feet the average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

Typically, the surface layer is grayish brown cobbly loam about 5 inches thick. The subsolidis brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan that is cemented with time and silica, and the lower part to a depth of 49 inches is light gray very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

included in this unit are about 6 percent Hunewill sols in swales and on skirts of fans (range site 26-16). 5 percent Lapon sols on low rounded his (range site 27-20), and 4 percent Veta soils in drainageways and on inset alluviat fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fulstone so: is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for hay and pasture and homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, bottlebrush squirreltal, low sagebrush, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by restricted rooting depth livery low available water capacity, and the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity.

This unit is poorly suited to irrigated hay and pasture. The main limitations are the very low available water capacity, shallow depth to the hardpan, slope, and cobbles on the surface. Seedbed preparation should be on the contour or across the slope where practical. The slow movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Because of the limited depth to the hardpan, cuts required for leveling should be less than 3 inches deep. The use of equipment is limited by cobbles on the surface and by slope.

The main limitation for construction of dwellings is the depth to the hardpan. Heavy equipment is needed for excavation.

The main limitation for septic tank absorption fields is the depth to the hardpan. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan. This unit is limited for roads because of the restricted depth to the hardpan. Roads should be designed to minimize cuts.

This map unit is in capability subclasses IVe, irrigated, and V Is, nonirrigated, it is in range site 26-25.

312—Fulstone cobbly loam, 8 to 15 percent slopes. This shallow, well drained soil is on alluvial fan remnants. It formed in a uvium derived dominantly from igneous and metamorphic rocks. E evation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown cobbly oam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan and the lower part to a depth of 48 inches is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

ncluded in this unit are about 6 percent Hunewill soils in swales and on skirts of fans (range site 26-16), 5 percent Lapon soils on low rounded hills (range site 27-20), and 4 percent Veta soils in dramageways and on inset a uvia fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of the Fustone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wild fe habitat. It is also used for homesite development

The potential plant community on this unit is mainly Thurber need egrass, bottlebrush squirreltail, low sagebrush and Sandberg bluegrass. The present vegetation in most areas is mainly bottlebrush squirreltail and low sagebrush. The production of forage is limited by restricted rooting depth, very low available water capacity and the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitation is the very low available water capacity.

The main mitation for construction of dwellings is the depth to the hardpan. Heavy equipment is needed for excavation

The main limitation for septic tank absorption fields is the depth to the hardpan. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan.

This unit is limited for roads because of the restricted depth to the hardpan. Roads should be designed to minimize cuts.

This map unit is in capability subclass Vills, noningated, it is in range site 26-25

313—Fulstone association. This map unit is on old dissected a avial fans. Slope is 4 to 30 percent.

Elevation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

This unit is 50 percent Fu stone very stony sandy loam, 4 to 15 percent slopes, and 35 percent Fulstone very stony sandy loam, 15 to 30 percent slopes. The Fulstone soil, 4 to 15 percent slopes, is in undulating areas and on the rolling tops of fans, and the Fulstone soil, 15 to 30 percent slopes, is on the side slopes.

Included in this unit are about 6 percent Hunewil soils in swales and on skirts of fans (range site 26-16), 5 percent Lapon soils on low rounded hills (range site 27-20), and 4 percent Veta soils in drainageways and or inset alluvial fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage vanes from one area to another

The Fulstone soils are shallow and well drained. They formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown very stony sandy foam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches or more is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches

Permeability of the Fu stone soil, 4 to 15 percent slopes, is slow. Available water capacity is very low Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is a ght. The hazard of soil blowing is slight.

Permeability of the Fulstone soil, 15 to 30 percent slopes, is slow. Available water capacity is very low Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing if is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity, low average annual precipitation, and restricted rooting depth. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity and rock fragments on the surface.

The main limitations for construction of dwe rings are the depth to the hardpan and the steepness of slope in some areas. Heavy equipment is needed for excavation

The main limitations for septic tank absorption fields are the depth to the hardpan and steepness of slope in some areas. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan.

This unit is limited for roads because of depth to the hardpan and steepness of slope in some areas. Roads

should be designed to minimize cuts because of the limited depth to the underlying hardpan. Cutting and filing are reduced by building roads in the less sloping areas of the unit. Hoads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Fustone soil, 4 to 15 percent slopes, is in capability subclass V is, nonimigated, and in range site 26-25. The Fustone soil, 15 to 30 percent slopes, is in capability subclass Viie, nonimigated, and in range site 26-25.

314—Fulstone-Reno association. This map unit is on old dissected a uvial fans. Slope is 4 to 30 percent. Elevation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 30 percent Fulstone cobbly loam, 4 to 15 percent slopes. 30 percent Reno cobbly sandy loam, 4 to 16 percent slopes; and 25 percent Fulstone stony oam, 16 to 30 percent slopes. The Fulstone cobbly loams in the ower lying and intermediate areas, the Reno soi mainly is in the lower fying areas, and the Fulstone stony loam is in the higher lying areas and on dissected side alones.

nctuded in this unit are about 5 percent Stucky soils on alluvial fans (range site 26-47), 5 percent Hunewill soils in swales on inset alluvial fans (range site 26-16), and 5 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Fulstone cobbly loam is shallow and well drained. It formed in a uvium derived from various kinds of rock. Typically the surface layer is grayish brown cobbly loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches or more is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Reno soil is moderately deep and well drained. It formed in alluvium derived from various kinds of rock Typically, the surface layer is grayish brown cobbly sandy loam about 3 inches thick. The subsoil is dark brown sandy clay about 21 inches thick. The upper 20 inches of the substratum is a hardpan, and the lower part to a depth of 60 inches or more is very gravelly loamy sand. Depth to the hardpan ranges from 20 to 40 nones.

Permeability of the Reno soil is very slow. Available water capacity is row. Effective rooting depth is 20 to 40.

inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Fulstone story loam is shallow and well drained it formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown story loam about 5 inches thick. The subsoil is brown dray about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches or more is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of this Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Thurber needlegrass, low sagebrush, bott abrush squirreltail, and Sandberg biuegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage on the Fulstone soils is limited by the restricted rooting depth low average annual precipitation, and very low available water capacity. The suitability of these soils for rangeland seeding is very poor. The main imitation is the very low available water capacity. The production of forage on the Reno soil is limited by the low average annual precipitation and low available water capacity The suitability of this soil for rangeland seeding is poor The main limitation is the low available water capacity. Seeding of large areas of the more favorable Reno soin this unit is difficult because of the pattern in which it occurs with areas of the less favorable Fu stone soils

This unit is limited for roads because of the restricted depth to the hardpan in the Fulstone soils, the high content of clay in the subsoil of the Reno soil, and the steepness of slope in some areas. Roads should be designed to minimize cuts because of the imited depth to the underlying hardpan in the Fulstone soils. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface.

The Fulstone soil, 4 to 15 percent slopes, and the Reno soil are in capability subclass V is, nonimgated The Fulstone soil, 15 to 30 percent slopes, is in capability subclass VIIe, nonimgated. All of the soils are in range site 26-25

315—Fulstone-Stucky association. This map unit is on old dissected alluvial fans. Slope is 2 to 30 percent. Elevation is 6,000 to 7,000 feet. The average annual precipitation is about 8 inches, the average annual air.

temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

This unit is 55 percent Fulstone cobbly loam, 2 to 8 percent slopes, and 30 percent Stucky extremely cobbly oam, 15 to 30 percent slopes. The Fulstone soil is on the tops of alluvial fans, and the Stucky soil is on dissected side slopes.

ncluded in this unit are about 10 percent Shree soils on dissected side slopes (range site 26-10) and 5 percent Veta soils in drainageways and on inset fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage vanes from one area to another.

The Fu stone so: is shallow and well drained. It formed in a luvium derived from granitic rock. Typically, the surface layer is grayish brown cobbly loam about 5 inches thick. The subso: is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches or more is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches, Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Stucky soil is very deep and well drained. It formed in a luvium derived from granitic rock. Typically the surface layer is light brownish gray extremely cobbly loam about 6 inches thick. The subsoil is yellowish brown extremely cobbly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is stratified extremely cobbly sandy loam to very story clay loam.

Permeability of this Stucky soil is moderately slow.

Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habital

The potential plant community on the Fulstone soil is mainly Thurber needlegrass, low sagebrush. Sandberg bluegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the restricted rooting depth, low average annual precipitation, and very low available water capacity. The suitability of this Fulstone soil for range and seeding is very poor. The main limitation is the very low available water capacity.

The potential plant community on the Stucky soil is mainly low sagebrush, desert needlegrass, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirrestail. The production of forage is limited by the low available water capacity and the low average annual precipitation. The suitability of this Stucky soil for rangeland seeding is

poor. The main limitations are the low precipitation and rock fragments on the surface. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

The Fulstone soil is imited for roads because of the restricted depth to the hardpan. Roads should be designed to minimize cuts. The Stucky soil is limited for roads because of slope and rock fragments throughout the soil. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the Stucky soil create road hazards and increase maintenance cost.

This unit is in capability subclass V is, nonirrigated The Fulstone soil is in range site 26-25, and the Stucky soil is in range site 26-47

321—Haybourne loam. This very deep, we i drained soil is on all uvial fans. It formed in all uvium derived dominantly from granitic rock. Slope is 0 to 2 percent. Elevation is 4,800 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown loam about 11 inches thick. The subsoil is yellowish brown sandy loam abut 21 inches thick. The substratum to a depth of 60 inches or more is yellowish brown, stratified sandy loam and loamy sand.

Included in this unit are about 6 percent Sara egusoils on high lake terraces (range site 26-16) and 4 percent Hotsprings soils on the upper parts of alluvial fans (range site 26-26). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Haybourne soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

Most areas of this unit are used for rivestock grazing and wildlife habitat. A few areas are used for homesite development. The unit can be used for irrigated pasture and cultivated crops if water is made available.

The potential plant community on this unit is mainly Thurber needlegrass, Indian neegrass, Wyoming big sagebrush, and Anderson peachbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, Douglas rabbitbrush, Anderson peachbrush, and Indian neegrass. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for

range and seeding is poor. The main limitation is the low average annual precipitation.

The main limitation for construction of dwellings is the hazard of flooding. It is difficult to establish and maintain structures that can protect the unit from flooding.

The main imitation for septic tank absorption fields is nadequate filtration of efficient. Because the substratum is rapidly permeable, special design may be needed to avoid positions ground water.

This unit is limited for roads because of the hazard of flooding and the potential for frost heaving. If surface drainage and a stable base are provided, damage from frost heaving is minimized for streets and roads on this unit.

This map unit is in capability subclasses Ills, imgated, and VIs, nonirrigated, It is in range site 26-16.

331—Hocar-Rock outcrop complex, 15 to 30 percent slopes, eroded. This map unit is on low mountains that have long narrow ridges and side slopes. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 11 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 110 days.

This unit is 75 percent Hocar gravelly loam, 15 to 30 percent slopes and 15 percent Rock outcrop. The Hocar soil is on mountainsides, and the Rock outcrop is mainly on ridges.

Included in this unit are about 5 percent Koontz soils on convex, south-facing side slopes (range site 26-15) and 5 percent sandy soils on dunes (range site 27-23) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Hocar soil is sha ow and well drained. It formed in residuum and collusium derived dominantly from metasedimentary rock. Typically, the surface layer is brown grave by loam about 9 inches thick. The underlying material to a depth of 19 inches is yellowish brown very grave by loam. Soft, fractured bedrock is at a depth of 19 inches. Depth to bedrock ranges from 7 to 20 inches.

Permeability of the Hocar soil is moderate. Available water capacity is very low. Effective rooting depth is 7 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of bedrock.

This unit is used for livestock grazing.

The potential plant community on this unit is mainly Thurber needlegrass. Wyoming big sagebrush, antelope bitterbrush, and bott ebrush squirreltail. The present vegetation in most areas is mainly bottlebrush squirreltail. Wyoming big sagebrush, and antelope bitterbrush. Pinyon and jumper trees have invaded. The production of forage is limited by the very low available water capacity, low average annual precipitation, and loss of moisture because of runoff. The suitability of this unit for rangeland seeding is very poor. The main

limitation is the very low available water capacity. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Livestock grazing should be managed to protect the unit from excessive erosion. Because of the density of the pinyon and juriper trees in most areas, this unit can be managed for wood products. The reestablishment of the range and plant community in some areas may be difficult.

This unit is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass V to nonirrigated, and in range site 26-15.

341—Holbrook very stony sandy loam, 4 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,800 to 5,400 feet. The average annual precipitation is about 9 inches the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown very stony sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is stratified and averages very gravelly sandy loam that is light brown shipray.

Included in this unit are about 7 percent Veta soils in drainageways (range site 26-24), 5 percent Hotsprings soils on toe slopes of alluvial fans (range site 26-16) and 3 percent Rebel soils on toe slopes of a luvial fans (range site 26-16). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Holbrook soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged high-intensity storms. Channeling and deposition are common along streambanks.

Most areas of this unit are used for livestock grazing and wildlife habitat. A few areas are used for homes to development.

The potential plant community on this unit is mainly antelope bitterbrush, Wyoming big sagebrush, and Thurber needlegrass. The present vegetation in most areas is mainly antelope bitterbrush. Wyoming big sagebrush, and green ephedra. Plriyon trees have invaded. The production of forage is smited by the low average annual precipitation and the very low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity of the surface layer. Grazing

should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Because of the density of the pinyon trees in most areas, this unit can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

The main mitation for construction of dwellings is rare periods of flooding. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

Slope is a concern in installing septic tank absorption fields. Absorption tries should be installed on the contour

Cutting and firing are reduced by building roads in the less sloping areas of the unit, if surface drainage and a stable base are provided, damage from trost heaving is minimized.

This map unit is in capability subclasses IVs, imgated, and V is, nonirrigated, it is in range site 26-10

343—Holbrook-Hotsprings complex, 2 to 15 percent slopes. This map unit is on alluvial fans. Elevation is 4,400 to 5,400 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Holbrook stony sandy loam, 8 to 15 percent slopes, and 30 percent Hotsprings gravelly loamy coarse sand, 2 to 8 percent slopes. The Holbrook soil is on the upper part of fans, and the Hotsprings soil is on the lower part.

notuded in this unit are about 4 percent Veta soils in drainageways (range site 26-24), 3 percent Haybourne so s on toe slopes of alluvial fans (range site 26-16), and 3 percent Rebel soils on toe slopes of alluvial fans (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Ho brook soil is very deep and well drained. It formed in a uvium derived from various kinds of rock. Typically the surface layer is grayish brown stony sandy loam about 7 inches thick. The underlying material to a depth of 60 inches or more is stratified and averages very grayelly sandy loam that is light brownish gray

Permeability of the Holbrook soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high intensity storms. Channeling and deposition are common along streambanks.

The Hotsprings soil is very deep and well drained, it formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is brown gravelty loarny coarse sand about 5 inches thick. The underlying material to a depth of 60 inches or more is yellowish brown gravelly loarny sand.

Permeability of the Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homes to development and irrigated cultivated crops

The potential plant community on this unit is mainly Wyoming big sagebrush. Thurber needlegrass bottlebrush squirreltail, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, spineless horsebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the restricted available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the restricted available water capacity of the surface layer. Grazing should be delayed unit, the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

If this unit is used for irrigated cultivated crops, the main limitations are slope and the stony surface layer of the Holbrook soil and the low available water capacity of the Hotsprings soil. Sprinkler irrigation is the most suitable method of applying water. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. At tillage should be on the contour or across the slope.

The main limitation for construction of dwellings on the Holbrook soil is the rare periods of flooding. The Hotsprings soil is well suited to the construction of dwellings, Buildings should be located above the expected flood level.

The main limitation for septic tank absorption fields on the Hotsprings soil is poor filtration of effuent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water. The main limitations for septic tank absorption fields on the Holbrook soil are the rare periods of flooding and large stones. Slope is also a concern in installing septic tank absorption fields. Absorption fines should be installed on the contour.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. The Hotsprings soil is flooded less frequently and is therefore more suitable for the construction of roads. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclasses IVs. irrigated, and Vits, nonimoated. It is in range site 26-16.

344—Holbrook-Shree association. This map unit is on the upper part of alluvial fans. Slope is 4 to 8 percent Elevation is 6,400 to 7,500 feet. The average annual precipitation is about 11 inches, the average annual air

temperature is about 49 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 45 percent Holbrook story sandy loam and 40 percent Shree very grave ly loam. The Holbrook soil is on inset fans, and the Shree soil is on slightly convex fan remnants.

included in this unit are about 10 percent Veta soils in drainageways (range site 26-24) and 5 percent. Hotsprings soils on toe slopes of alluvial fans (range site 26-16). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Holbrook soil is very deep and well drained. It formed in alluvium derived from various kinds of rock Typically, the surface layer is grayish brown stony sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is stratified and averages very gravelly sandy loam that is light brownish gray.

Permeability of this Holbrook soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged high-intensity storms. Channeling and deposition are common along streambanks.

The Shree soil is very deep and well drained, it formed in alterium derived from various kinds of rock. Typically, the surface layer is brown very gravelly loam about 10 inches thick. The subsoil is light yellowish brown very gravelly day loam about 16 inches thick. The substratum to a depth of 60 inches or more is very pale brown extremely grave by loam.

Permeability of this Shree soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is sight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat

The potential plant community on this unit is mainly Thurber needlegrass, basin wildrye, Wyoming big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian ricegrass, and Anderson peachbrush. The production of forage is mited by the restricted available water capacity and the moderate average annual precipitation.

The suitability of the Holbrook soil for rangeland seeding is very goor. The main limitation is the very low available water capacity. The suitability of the Shree soil for rangeland seeding is fair. The main limitations are the very grave by surface layer and moderate average annual precipitation.

Seeding of large areas of the more favorable Shree soil in this unit is difficult because of the pattern in which

they occur with areas of the less favorable Holbrook son Grazing should be delayed until the sons are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure

If surface drainage and a stable base are provided damage from frost heaving can be minimized for roads on this unit. It is difficult to establish and maintain structures that can protect this unit from flash flooding

This unit is in capability subclass VI s, nonimigated, and in range site 26-10.

345—Holbrook Variant-Rock outcrop complex, 30 to 75 percent alopes. This map unit is on hills and mountains. Elevation is 5,000 to 6,200 feet. The average annual precipitation is about 11 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 70 percent Holbrook Variant very stony fine sandy loam, 30 to 75 percent slopes, and 20 percent Rock outcrop. The Holbrook Variant soil is on mountains and hillsides, and Rock outcrop is on ridges and extremely steep side slopes.

Included in this unit is about 10 percent Rubble land on very steep side slopes, commonly associated with areas of Rock outcrop. The percentage varies from one area to another

The Holbrook Variant soil is moderately deep and well drained. It formed in colluvium derived dominantly from andesite and basalt. Typically the surface layer is light brownish gray and pale brown very story fine sandy loam about 9 inches thick. The subsoil is light ye lowish brown very cobbly sandy loam about 11 inches thick. The substratum is pale brown very gravelly fine sandy loam about 15 inches thick. Hard andesite is at a depth of 35 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Holbrook Variant soil is moderately rapid. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of so blowing is slight.

Rock outcrop consists of exposures of bedrock.

This unit is used mainly for tivestock grazing. It is a so used for wild te habitat.

The potential plant community on the Holbrook Variant soil is mainly Thurber needlegrass, basin wildrye. Wyoming big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail. Indian ricegrass, and Anderson peachbrush. The production of forage is imited by the low available water capacity and the moderate average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low available water capacity of the surface tayer and slope. Grazing should be detayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of slope and the areas of Rock outcrop. Cutting and filling can be reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance costs reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, noningated. The Holbrook soil is in range site 26-10.

352—Hotsprings loamy coarse sand, 2 to 8 percent slopes. This very deep, well drained soil is on alluviar fans. It formed in alluvium derived dominantly from granitic rock. Elevation is 4,400 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown loamy coarse sand about 4 inches thick. The underlying material to a depth of 50 inches or more is yellowish brown gravelly.

pamy sand.

Included in this unit are about 8 percent Holbrook soits on the upper part of alluvial fans (range site 26-10), 4 percent Haybourne soils on toe slopes of alluvial fans (range site 26-16), and 3 percent Veta soifs in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is sight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing and impated cultivated crops. It is also used for homesite development

The potential plant community on this unit is mainly Indian ricegrass. Wyoming big sagebrush, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian ricegrass, and Anderson peachbrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main imitation is the texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

If this unit is used for imgated cultivated crops, the main mitations are slope, rapid permeability, and low available water capacity. Sprinkler imgation is best suited to the unit. Because the soil is droughty, applications of imagation water should be light and frequent. Soil blowing can be controlled by keeping the soil rough and cloddy.

when it is not protected by vegetation.

This unit is well suited to the construction of dwellings. The main imitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water or nearby water supplies.

If surface drainage and a stable base are provided damage from frost heaving can be minimized for roads on this unit

This map unit is in capability subclasses IVs, imgated and Vils, noningated. It is in range site 26-16.

353—Hotsprings gravelly loamy coarse sand, 0 to 2 percent slopes. This very deep, well drained so its on alluvial fans. It formed in alluvial derived dominantly from granitic rock. Elevation is 4,400 to 5 200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown gravelly pamy coarse sand about 4 inches thick. The underlying material to a depth of 60 inches or more is yellow ships.

brown gravelly loamy sand.

included in this unit are about 6 percent Hoibrook soils on the upper part of alluvial fans (range site 26-10) 6 percent Haybourne soils on toe slopes of a luvial fans (range site 26-16), and 3 percent Veta soils in drainageways (range site 27-23) Included areas make up about 15 percent of the total acreage. The percentage values from one area to another.

Permeability of this Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is

slight.

This unit is used mainly for imgated cultivated crops and livestock grazing. It is also used for homesita development.

The potential plant community on this unit is mainly Indian ricegrass. Wyoming big sagebrush, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirre tail Indian ricegrass, and Anderson peachbrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low available water capacity.

If this unit is used for impated cultivated crops, the main limitations are rapid permeability and low available water capacity. Because the water intake rate is rapid, sprinkler irrigation is best suited to the so- in this unit. Because the soil is droughty, applications of irrigation water should be light and frequent.

This unit is well suited to the construction of dwe lings. The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water or nearby water supplies.

If surface drainage and a stable base are provided, damage from frost heaving can be minimized for roads

on this unit.

This map unit is in capability subclasses IVs, impated. and V Is, nonirrigated, it is in range site 26-16.

354-Hotsprings-Holbrook complex, 2 to 4 percent slopes. This map unit is on aliuvia, fans. Elevation is 4,400 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average trost-free period is 100 to 120 days

This unit is 50 percent Hotsprings gravelly learny coarse sand and 40 percent Holbrook cobbly loamy coarse sand. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scare used

Included in this unit is about 10 percent Veta soils in

drainageways (range site 26-24)

The Hotsprings soil is very deep and well drained, it formed in alluvium derived dominantly from granitic rock. Typically the surface layer is brown gravelly loamy coarse sand about 4 inches thick. The underlying material to a depth of 60 inches or more is vellowish brown gravelly loamy sand

Permeability of the Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60. nches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight

The Horbrook soil is very deep and well drained. It formed in a luvium derived from various kinds of rock. Typically, the surface layer is grayish brown cobbly pamy coarse sand about 8 inches thick. The underlying materia to a depth of 60 inches or more is light brownish gray very gravelly sandy loam and very gravelly

Permeability of the Holbrook soil is moderately rapid Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for impated cultivated crops and ivestock grazing. It is also used for homesite

development.

The potential plant community on the Hotsprings soil s mainly Wyoming big sagebrush, Indian ricegrass, and Thurber needlegrass. The present vegetation in most areas is mainly Anderson peachbrush, Wyoming big sagebrush, and green ephedra. Scattered pinyon frees have invaded. The production of forage is limited by the ow average annual precipitation and the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low ava: able water capacity

The potential plant community on the Holbrook soil is mainly Thurber needlegrass, Indian ricegrass, bottlebrush squirreltail, and Wyoming big sagebrush. The present vegetation in most areas is mainly Anderson

peachbrush, Wyoming big sagebrush, green ephedra. and scattered proyon trees. The production of forage is imited by the very low available water capacity and low average annual precipitation. The suitability of this son for rangeland seeding is very poor. The main limitation is the low available water capacity

Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure

If this unit is used for impated cultivated crops, the main limitations are the low available water capacity, the rapid permeability of the Hotsprings soil, and the moderately rapid permeability and cobbly surface layer of the Holbrook soil. Because the water intake rate is rapid or moderately rapid, sprinkler imigation is best suited to this unit. Because the soils are droughty, applications of virgation water should be light and frequent

The main limitation for construction of dwellings on the Holbrook soil is rare periods of flooding. Buildings should be located above the expected flood level. The Hotsprings soil is well suited to construction of dwellings.

The main limitation for septic tank absorption fields is madequate filtration of effluent in the Hotsprings soil Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water or nearby water supplies.

If surface drainage and a stable base are provided, damage from frost heaving can be min mized for roads on this unit. The Hotsprings soil in this unit floods less frequently and is more favorable for the construction of roads

This map unit is in capability subclasses IVs, irrigated, and vills, nonirrigated. It is in range site 26-16.

361-Hough sand, 0 to 2 percent slopes. This very deep, well drained soil is on lake plains and stream terraces. It formed in eq an material modified with alluvial and lacustrine sediment derived dominantly from intrusive and extrusive igneous rock. Elevation is 4,100 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 53 degrees F, and the average frost-free period is 110 to 130 days

Typically, the surface layer is light brownish gray sand about 10 inches thick. The subsoil is brown sandy clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is brown and yellowish brown fine sand to coarse sand and has many from oxide mottles.

included in this unit are about 4 percent Rusty soils in slightly elevated areas of lake plains (range site 27-9), 4 percent Patna soils in hummooky areas (range site 27-9). and 2 percent small playas in shallow, brown out depressional areas. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Hough soil is moderate to a depth of 21 inches and very rapid below this depth. Available

water capacity is low. Effective rooting depth as 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing, wildlife habitat, and homesite development. The unit can be used for mosted cultivated crops if water is made available.

The potential plant community on this unit is mainly ndian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly littlereaf horsebrush, Indian ricegrass, and Douglas rabbitbrush. The production of forage is fimited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitations are the low average annual precipitation and low average to protect the unit from blowing and drifting sand.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is nadequate filtration. Because the substratum is very rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses Ills, irrigated, and VIIs, nonringated. It is in range site 27-18.

371—Hyloc-later association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 5,500 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 46 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 45 percent Hyloc very cobbly sandy loam, 15 to 30 percent slopes, and 40 percent later extremely stony sandy loam, 30 to 50 percent slopes. The Hyloc soil sion south- and west-facing slopes, and the later soil sion north- and east-facing slopes.

ncluded in this unit are about 6 percent Lunder soils on a uvia fan remnants (range site 26-23), 5 percent Rock outcrop on ridges and steep slopes, and 4 percent Rubbie land on steep slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Hyloc soil is shallow and well drained. It formed in residuum derived dominantly from andesite and basalt. Typically, the surface layer is grayish brown very cobbly sandy loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. Weathered bedrock is at a depth of 18 inches. Depth to soft bedrock ranges from 14 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Permeability of the Hyloc soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 nches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The later soft is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from basic igneous rock. Typically, 40 to 80 percent of the surface is covered with stones, cobbles, and pebbles. The surface layer is light ye lowish brown and dark grayish brown extremely stony sandy loam about 17 inches thick. The subsoil averages very stony sandy day loam that is light yellowish brown, it is about 21 inches thick. Hard bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of the later soft is moderately slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil browing is slight.

This unit is used for wood products, livestock grazing widdle habitat, and watershed

The Hyloc soil can produce 3 cords of wood per acre in a stand of pinyon and jumper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are the very cobbly surface tayer and the hazard of erosion. Stones and cobbles on the surface interfere with the use of equipment.

The potential plant community on the ster so is mainly western needlegrass, mountain big sagebrush. and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and bottlebrush squire tail. Many pinyon trees have invaded. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope and rock fragments on the surface The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect the soil from excessive erosion and to prevent overgrazing in the less sloping areas Because of the density of the pinyon trees in most areas, this soil can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult

The Hyloc soil is limited for roads because of low soil strength resulting from the content of highly expansive clay and because of slope. The later soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage, a stable base, and adequate wearing surface Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Hyloc soil is in capability subclass VIIe, noningated. The later soil is in capability subclass VIIs, noningated, and in range site 26-5

372—Hyloc-Ister-Rock outcrop association. This map unit is on mountains. Slope is 30 to 75 percent Elevation is 5,500 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 46 degrees F, and the average frost free period is 80 to 100 days.

This unit is 35 percent Hyloc very cobbly sandy loam, 30 to 50 percent slopes; 35 percent later very storry sandy loam, 50 to 75 percent slopes, and 15 percent Rock outcrop. The Hyloc soil is on south- and west-facing slopes, the later soil is on north- and east-facing slopes, and the Rock outcrop is on ridges and very steep slopes.

ncluded in this unit are about 10 percent Rubble land on very steep stopes. 4 percent Shree soils on afturial tans (range site 26-10), and 1 percent wet, dark colored soils at the bottom of draws, near springs or seeps (aspen wood and). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Hyloc soil is shallow and well drained. If formed in residuum derived dominantly from andesite. Typically, the surface layer is grayish brown very cobbly sandy loam about 5 inches thick. The subsoil is brown clay about 13 inches thick, Weathered bedrock is at a depth of 18 inches. Depth to weathered bedrock is 14 to 20 nones. Depth to hard bedrock ranges from 20 to 30 nones.

Permeability of this Hyloc sor is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 nches. Runoff is very rapid, and the hazard of water erosion, a moderate. The hazard of sod blowing is slight.

The later soil is moderately deep and well drained. If formed in collusium derived dominantly from basic igneous rock. Typically, 40 to 80 percent of the surface is covered with stones and cobbles. The surface layer is dark yellow ab brown very stony sandy loam about 17 inches thick. The subsoil is light yellowish brown very stony sandy clay loam about 21 inches thick. Andesitic bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of this ister soil is moderately slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is sight.

This unit is used mainly for wood products, watershed, and wildlife habitat. It is also used for livestock grazing.

The Hyloc soil can produce 4 cords of wood per acre in a stand of pinyon and jumper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are the hazard of erosion, steep slopes, the very cobbly surface layer, and areas of Rock outcrop. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The potential plant community on the ster so, is mainly western needlegrass, mountain big sagebrush, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush and antelooe bitterbrush. Many pinyon trees have invaded. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for range and seeding is very poor The main limitations are slope and stones on the surface. Steepness of slope limits access and movement. of livestock. Livestock grazing should be managed to protect this soil from excessive erosion and to prevent overgrazing in the less sloping areas. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Because of the density of the pinyon trees in most areas, this soil can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult

The Hyloc soil is limited for roads because of low soil strength resulting from the content of highly expansive clay and because of slope. The later soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Roads should be provided with a stable base and an adequate wearing surface.

The Hyloc soil is in capability subclass VIIe, nonirrigated. The later soil is in capability subclass VIIs, nonirrigated, and in range site 28-5

391—Juva gravelly silt loam, 0 to 2 percent alopes. This very deep, well drained soil is on broad at uvia fans it formed in alluvium derived dominantly from andesite, basalt, and sediment. Elevation is 4,200 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray gravelly silt loam about 4 inches thick. The underlying material to a depth of 60 inches or more is finely stratified, light brownish gray and light gray grave y loamy sand to loam. In some areas the rock fragments are mostly carbonaceous shale.

Included in this unit are about 5 percent Malpais so is in swales and drainageways (range site 27-18) and 5 percent Bluewing soils on lake and stream terraces (range site 27-18), included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Juva soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, very brief periods of flooding from June through September.

This unit is used for livestock grazing and wildlife habitat. The unit can be used for ringated cultivated crops if water is made available.

The potential plant community on this unit is mainly Indian ricegrass and winterfal. The present vegetation in most areas is mainly Bailey greasewood, low rabbitbrush, shadscale, winterfat, and bud sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is mitted for roads because of occasional periods of flooding it is difficult to establish and maintain structures that can protect the unit from flash flooding

This map unit is in capability subclasses liw, irrigated, and VIIw nonirrigated. It is in range site 27-14

392—Juva gravelly fine sandy loam, 2 to 4 percent slopes. This very deep, well drained soil is on broad a uvia fans, it formed in all uvium derived dominantly from andesite, basalt, and shaly metasedimentary rock Elevation is 4,200 to 4,600 feet. The average annual predictation is about 5 inches the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer averages gravelly fine sandy loam that is light brownish gray. It is about 4 niches thick. The underlying material to a depth of 60 inches or more is finely stratified, light brownish gray and light gray very gravelly loamy sand to loam. In some areas the rock fragments are mostly carbonaceous shale.

ncluded in this unit are about 10 percent Malpais soils in drainageways (range site 27-18) and 5 percent. Bluewing soils on lake terraces and stream terraces (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Juva soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, very brief periods of flooding from June through September.

This up I is used for livestock grazing and wildlife habitat. The unit can be used for imigated cultivated crops if water is made available.

The potential plant community on this unit is mainly not an neegrass, shadscale, Bailey greasewood, and bott ebrush squareitail. The present vegetation in most areas is mainly Bailey greasewood, low rabbitbrush, shadscale, and bud sagebrush. The production of forage is imited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor

The main limitation is the low average annual precipitation.

This unit is limited for roads because of occasional periods of flooding. It is difficult to establish and maintain structures that can protect the unit from flash flooding

This map unit is in capability subclasses IIW, irrigated, and VIIW, noningated. It is in range site 27-18

401—Lahontan sitty clay loam, strongly saline-alkali. This very deep, somewhat poorly drained so is on old lake plains. It formed in fine textured acustrine sediment derived from various kinds of rock. Stope is 0 to 2 percent. Elevation is 4,200 to 4,700 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray and pale brown sitty diay loam about 12 inches thick. The underlying material to a depth of 60 inches or more a pale brown and light gray stratified diay, sitty diay, and sitty clay loam.

Included in this unit are about 5 percent Orizaba soils that are artificially drained (range site 27-24) and 5 percent Delp soils on stabilized dunes and hummocks (range site 27-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Laboritan soil is very slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly saltand alkali-affected throughout the profile. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on this unit is mainly black greasewood, shadscale, and indian ricegrass. The present vegetation in most areas is mainly black greasewood, shadscale, and alkais seepweed. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitations are the low average annual precipitation and the strongly saline and alkali condition of the soil. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of low so strength resulting from the high content of highly expansive clay. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VI s. noningated, and in range site 27-25

411—Lapon extremely stony loam, 15 to 30 percent slopes. This very shallow, well drained soil is on his and mountains it formed in residuum derived dominantly from basic igneous rock. Elevation is 4,400 to 7,000 feet. The average annual precipitation is about 8 nches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is light brownish gray extremely story loam about 2 inches thick. The subsoil is brown and very grave by clay loam about 8 inches thick. The next layer is a hardpan that is demented with spical and lime and is about 10 inches thick. Fractured andesite is at a depth of 20 inches. Depth to the hardpan ranges from 8 to 14 inches. Depth to bedrock ranges from 15 to 40 inches.

ncluded in this unit are about 5 percent Risue soils on high-lying old dissected fans (range site 27-18), 3 percent Patha soils that formed in sandy eolian deposits on the leeward side of hills and draws (range site 27-9), and 2 percent Maipais soils in drainageways (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage values from one area to another.

Permeability of this Lapon soil is slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for fivestock grazing and wildlife habitat.

The potential plant community on this unit is mainly low sagebrush pine bluegrass, and Thurber needlegrass. The present vegetation in most areas is mainly low sagebrush, Doug as rabbilbrush, and bottlebrush squirre tail. The production of forage is limited by the low average annual precipitation, the very low available water capacity, and loss of moisture because of runoff The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity. The stones and cobbles on the surface nterfere with use of mechanica, equipment and the movement of livestock, Livestock grazing should be managed to protect the soli from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and at the potential of the soil to produce plants suitable for grazing.

This unit is ilmited for roads because of shallow depth to the cemented hardpan and slope. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan and bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-20

412—Lapon-Rubble land-Rock outcrop association. This map unit is on hills and mountains. Slope is 15 to 30 percent. Elevation is 4,400 to 7,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

This unit is 50 percent Lapon extremely stony toam, 15 to 30 percent slopes; 20 percent Rubble land, and 15 percent Rock outcrop. The Lapon so is on the tops and upper side slopes of his and mountains, Rubble and is in slightly concave areas, and Rock outcrop is on ridges.

Included in this unit are about 8 percent soils that are moderately deep over bedrock and are on slightly concave side slopes (range site 26-16), 3 percent Risue soils on high dissected allowal fan remnants (range site 27-18), 2 percent Patna soils that formed in sandy equan deposits (range site 27-9), and 2 percent Malpais soils in drainageways (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage vanes from one area to another.

The Lapon soil is very shallow and well drained it formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray extremely stony loam about 2 inches thick. The subsoil is brown very gravelly clay loam about 8 inches thick. The next layer is a hardpan that is cemented with silica and time and is about 26 inches thick. Fractured andesite is at a depth of 36 inches. Depth to the hardpan ranges from 8 to 14 inches. Depth to bedrock ranges from 15 to 40 inches.

Permeability of the Lapon soil is slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rubble land consists of stringers of cobbles, stones, and boulders. It supports little if any vegetation except lichens.

Rock outcrop consists of exposures of basic igneous bedrock.

This unit is used for twestock grazing and wild fe habitat

The potential plant community on the Lapon soil is mainly low sagebrush, pine bluegrass, and Thurber needlegrass. The present vegetation in most areas is mainly low sagebrush, Douglas rabbitorush, and bothebrush squirrellail. The production of forage is limited by the low average annual precipitation, the very low available water capacity, and loss of moisture. because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of avestock. Livestock grazing should be managed to protect this soil from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the soil to produce plants suitable for grazing

This unit is imited for roads because of the numerous areas of Rock outcrop and Rubble land. The Lapon soil is limited for roads because of shallow depth to the cemented hardpan and slope. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan and bedrock. Cutting and fit inglare reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Lapon soil is in capability subclass VIIs, noningated, and in range site 27-20.

413—Lapon-Fulstone-Old Camp association. This map unit is on hillsides, adjacent faulted terraces, and alluvia fans. Stope is 2 to 30 percent. Elevation is 5,800 to 6.800 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 35 percent Lapon very cobbly sitt loam, 4 to 15 percent slopes; 30 percent Fulsione cobbly loam, 2 to 8 percent slopes; and 25 percent Old Camp very story loam. 15 to 30 percent slopes. The Lapon soil is on the tops of terraces and on upper side slopes, the Fulstone soil is on alluvial tans below terraces, and the Old Camp soil is on the lower part of hillsides.

Included in this unit are about 4 percent Veta soils in drainageways (range site 26-24), 3 percent Rock outcrop on ridges and steep slopes, and 3 percent Patna soils on the leeward sides of hills and draws (range site 27-9) Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Lapon son is very shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brown shighly very cobbly silt loam about 6 inches thick. The subsoil is brown very gravelly clay loam about 8 inches thick. The next layer is a hardpan that is cemented with silica and time and is about 26 inches thick. Hard andesite is at a depth of 40 inches. Depth to the hardpan ranges from 8 to 14 inches. Depth to bedrock ranges from 15 to 40 inches.

Permeability of the Lapon soil is slow. Available water capacity is very low. Effective rooting depth is 8 to 14 nones. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Fulstone soil is shallow and well drained. If formed in alluvium derived dominantly from basic igneous rock. Typically the surface layer is grayish brown cobbly loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The next layer is a hardpan that is cemented with silica and time and is about 12 inches thick. Below this to a depth of 48 inches or more or more is very cobbly sandy loam that is

weakly cemented with silica and time in a few spots. Depth to the hardpan ranges from 14 to 20 inches

Permeability of the Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Old Camp soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very story loam about 4 inches thick. The subsoil is brown very coubly clay loam about 13 inches thick. Andesite is at a depth of 17 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil biowing is slight.

This unit is used for livestock grazing and wildlife

The potential plant community on the Lacon soil is mainly low sagebrush. Thurber need egrass, and pine bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreitar, and pine bluegrass. The production of forage is limited by the very low available water capacity and low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity.

The potential plant community on the Fu stone soil a mainly low sagebrush. Thurber needlegrass, bottlebrush squireftail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush bottlebrush squirreftail, and Sandberg bluegrass. The production of forage is limited by the low average annual precipitation and the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity.

The potential plant community on the Old Camp soil is mainly desert needlegrass. Thurber need egrass, and Wyoming big sagebrush. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, and bottlebrush squirreltail. The production of forage is firnted by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope and the very low available water capacity.

The stones and cobbles on the surface of the so is in this unit interfere with use of mechanical equipment and the movement of livestock

The Lapon and Fulstone so is are mited for roads because of shallow depth to the hardpan. The Old Camp soil is limited for roads because of shallow depth to bedrock, slope, and the content of stones and cobbles. Roads should be designed to minimize cuts because of

the limited depth to bedrock and hardpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the Old Camp so: create road hazards and increase maintenance cost.

The Lapon and Fu stone soils are in capability subclass Vilis, noningated, and the Old Camp soil is in capability subclass Vile, noningated. The Lapon soil is in range site 27-20, the Fuistone soil is in range site 26-25, and the Old Camp soil is in range site 27-22.

441—Lunder very cobbly loam, 2 to 15 percent slopes. This shallow, well drained soil is on old altuviate fans. It formed in all uvium derived dominantly from basic igneous rock. Elevation is 6,000 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

Included in this unit is about 10 percent Shree soils on the upper part of alluvial fans (range site 26-10).

Typically the surface layer averages very cobbly loam that is brown. It is about 7 inches thick. The subsoil is brown cobbly clay about 9 inches thick. The upper 15 inches of the substratum is a hardpain that is cemented with silica and lime, and the lower part to a depth of 60 inches or more is very pale brown and pale brown extremely cobbly sandy loam that is weakly to strongly cemented with silica and lime. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of this Lunder soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 notes. Punoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Thurber needlegrass, Canby bluegrass, and low sagebrush. The present vegetation in most areas is mainly ow sagebrush, bottlebrush squirrettail, and widely scattered singleleaf pinyon. The production of forage is mited by the very low available water capacity and restricted rooting depth. The suitability of this unit for rangetand seeding is very poor. The main limitations are rock fragments on the surface, restricted rooting depth, and very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Grazing should be detayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of restricted depth to the hardpan and cobbles on the surface. Roads should be designed to minimize cuts because of the

limited depth to the underlying hardpan. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VI s, nonimigated, and in range site 26-23

451—Obanion loamy coarse sand. This very deep, very poorly drained soil is in small basins and on alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 7 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown pamy coarse sand about 11 inches thick. The underlying material to a depth of 60 inches or more is mottled and gleyed, stratified sandy loam to sandy cray pam.

Included in this unit are about 5 percent Hotsprings soils on toe slopes of altituded fans (range site 26-16) and 5 percent Haybourne soils on toe slopes of a luvia, fans (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Obanion soi is moderately slow Avaitable water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 0.5 to 2.0 feet from January through December Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for waterfowl habitat.

The potential and present plant community on this unit is mainly sedges and rushes. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the seasonal high water table. Plants that tolerate wetness should be seeded. Grazing should be delayed until the socials drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of the hazard of frost heaving and the seasonal high water table. Local roads and streets may require a special base to avoid frost heave damage. Drainage is needed for the construction of roads and to reduce maintenance cost.

This map unit is in capability subclass Vw, non riigated, and in range site 27-1

452—Obanion sandy loam, drained. This very deep, very poorly drained soil is on alluvial fans and alluvial flats. The drainage has been altered as a result of changes in the original course of streams or as a result of channel entrenchment. The soil formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 7 inches, the average

annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days

Typically the surface layer is grayish brown sandy loam about 11 inches thick. The underlying material to a depth of 60 inches or more is motived, stratified sandy loam to sandy clay loam.

Included in this unit are about 5 percent Saralegui soils on take terraces (range site 26-16) and 5 percent Haybourne soils on toe slopes of alluviat fans (range site 26-16) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

Permeability of this Obanion soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.0 to 3.5 feet from January through December Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated cultivated crops

The potential and present plant community on this unit s mainly rushes, sedges tufted hairgrass, and Nevada b begrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand tramping by livestock.

This unit is suited to irrigated hay, pasture, and outivated crops. It is limited mainly by the seasonal high water table. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprink er irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

This unit is limited for roads because of the hazard of frost heaving Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses lilw, imgated, and V w, noningated, it is in range site 27-4

453—Obanion sandy toam, saline-alkali. This very deep, very poorly drained soil is in basins and on alluvial fans and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,500 to 5 000 feet. The average annual precipitation is about 7 nones, the average annual air temperature is about 50 degrees F and the average frost free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy roam about 11 inches thick. The underlying material to a depth of 60 inches or more is mottled and gleyed, stratified sandy loam to sandy clay loam.

Included in this unit are small areas of nonsaline and nonalkali Obanion soils in shallow depressional areas (range site 27-1). Included areas make up about 10 percent of the total acreage.

Permeability of this Obanion soil is moderately slow Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 0.5 to 2.0 feet from January through December Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkab-affected to a depth of 11 inches.

This unit is used mainly for livestock grazing. It is also used for waterlowi habital

The potential plant community on this unit is mainly alkali sacaton, inland saltgrass, and black greasewood. The present vegetation in most areas is mainly inland saltgrass, creeping wildrye, and black greasewood. The production of forage is limited by the low average annual precipitation and the content of salts and alkali in the surface layer. The water table provides supplementa moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main limitations are the seasonal high water table and the content of saits and alkali. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of the hazard of frost heaving and the seasonal high water table. Loca roads and streets may require a special base to avoid frost heave damage. Drainage is needed for the construction of roads and to reduce maintenance cost.

This map unit is in capability subclass V w, nonirrigated, and in range site 27-5

462—Olac-Rock outcrop complex, 8 to 15 percent slopes. This map unit is on strongly sloping up ands Elevation is 4,800 to 5,900 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 70 percent Olac very stony loam, 8 to 15 percent slopes, and 20 percent Rock outcrop. The Olac soil is mostly on south- and west-facing slopes and Rock outcrop is along ridges and on some side slopes.

Included in this unit are about 6 percent Old Camp soils on concave, north-facing slopes (range site 26-22) and 4 percent Veta soils that are flooded and are in drainageways (range site 26-34). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Olac soil is very shallow and well drained it formed in residuum derived dominantly from rhyo itic tuff Typically, the surface layer is grayish brown very story loam about 4 inches thick. The subsoil is ye lowish brown extremely gravelly clay loam about 10 inches

thick. Rhyolite is at a depth of \$4 inches. Depth to bedrock ranges from 8 to \$4 inches.

Permeability of the Olac soil is moderate. Available water capacity is very few. Effective rooting depth is 8 to 14 inches. Bunoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of rhyolitic

UIT

This unit is used for livestock grazing and wildlife habitat

The potential plant community on this unit is mainly Thurber needlegrass, low sagebrush. Sandberg bluegrass, and bottlebrush squirrettail. The present vegetation in most areas is mainly low sagebrush. Sandberg bluegrass and bottlebrush squirrettail. The production of forage is limited by the very low available water capacity and the restricted rooting depth. The suitability of this unit for rangeland seeding is very poor. The main limitations are the very low available water capacity and rock fragments on the surface. The stones and cobbies on the surface interfere with use of mechanical equipment and the movement of livestock.

This unit is imited for roads because of the restricted depth to bedrock. Roads should be designed to minimize

Culs

This map unit is in capability subclass VIIs, noningated, and in range site 26-25.

464—Olac-Rock outcrop complex, 15 to 50 percent slopes. This map unit is on uplands. Elevation is 4,800 to 5,900 feet. The average annual precipitation is about 9 inches the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 66 percent Olac very stony loam, 15 to 50 percent slopes, and 20 percent Rock outcrop. The Olac soil is on hillsides and mountainsides, and the Rock

outcrop is on ridges and very steep slopes.

ncluded in this unit are about 12 percent Old Camp soils on concave, north-facing slopes (range site 26-22) and 3 percent Veta soils that are flooded and are in drainageways (range site 26-34). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Olac soil is very shallow and well drained. It formed in residual derived dominantly from rhyolitic luff Typically the surface layer is grayish brown very stony loam about 3 inches thick. The subsoil is yellowish brown extremely gravelly clay loam about 7 inches thick Rhyolite is at a depth of 10 inches. Depth to rhyolite

ranges from 8 to 14 inches.

Permeability of this Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of rhyolitic tuff This unit is used for Evestock grazing and wildlife habitat

The potential plant community on this unit is mainly tow sagebrush. Thurber needlegrass, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The production of forage is limited by the very low available water capacity and the restricted rooting depth. The suitability of this unit for rangeland seeding is very poor. The main limitations are slope, the very low available water capacity, and rock fragments on the surface. The stones and cobbies on the surface interfere with use of mechanical equipment and the movement of livestock.

This unit is limited for roads because of slope and the restricted depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VI s, nonirrigated, and in range site 26-25

466—Olac-ister-Rock outcrop association. This map unit is on hills. Slope is 30 to 50 percent. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 50 percent Orac very story loam, 30 to 50 percent slopes, 25 percent later extremely story sandy loam, 30 to 50 percent slopes, and 15 percent Rock outcrop. The Orac soil is on south-facing convex slopes the later soil is on north-facing, concave slopes, and Rock outcrop is on ridges.

Included in this unit is about 10 percent Old Camp soils on east-facing slopes.

The Olac soil is very sharow and well drained. If formed in residuum derived dominantly from andesite. Typically, the surface layer is light brownish gray and grayish brown very story loam about 4 inches thick. The subsoil is grayish brown extremely gravelly clay oam about 10 inches thick. Andesite is at a depth of 14 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The later soil is moderately deep and weil drained. It formed in colluvium derived dominantly from andesite Typically, the surface layer is dark grayish brown extremely stony sandy loam about 11 inches thick. The subsoil is dark brown and brown very stony clay loam about 27 inches thick. Bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeab ity of the later soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 25 to 40 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of andesite.
This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Olac soil is mainly low sagebrush. Thurber needlegrass, and bottlebrush squirrertal. The present vegetation in most areas is mainly low sagebrush and desert needlegrass. The production of torage is limited by the low average annual precipitation and restricted rooting depth.

The potential plant community on the later soil is mainly mountain big sagebrush antelope bitterbrush, western needlegrass, and basin wildrye. The present vegetation in most areas is mainly mountain big sagebrush antelope bitterbrush, and Thurber needlegrass. The production of forage is limited by the

ow average annual precipitation.

The suitability of this unit for rangeland seeding is very poor. The main limitations are slope and rock fragments on the surface. Grazing should be delayed until the soils in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas.

The Olac soil is imited for roads because of slope and depth to bedrock. The later soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been

d sturbed

This map unit is in capability subclass VIIs, non-rigated. The Olac soil is in range site 26-25, and the ster soil is in range site 26-5.

471—Oppio-Nosrac association. This map unit is on mountains. Slope is 30 to 50 percent. Elevation is 5,700 to 6 200 feet. The average annual precipitation is about 12 inches the average annual air temperature is about 48 degrees F and the average frost-free period is 80 to 110 days.

This unit is 70 percent Oppio very story fine sandy oam and 20 percent Nosrac story clay loam. The Oppio soll is on south-facing side slopes, and the Nosrac soil is

on north-facing side slopes

Included in this unit are about 5 percent Devada soils on short, rounded or convex side slopes (range site 26-23) and 5 percent Rock outcrop on ridges. Included

areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Oppio soil is moderately deep and well drained. It formed in residuum derived dominantly from andesite Typically, the surface layer is light brownish gray and grayish brown very stony fine sandy loam about 6 inches thick. The subsoil is pale brown clay about 25 inches thick. Andesite is at a depth of 31 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Oppio soi is slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion.

is high. The hazard of soil blowing is slight.

The Nosrac soil is very deep and well drained, it formed in residuum and colluvium derived dominantly from andesite and baselt. Typically, the surface layer is grayish brown stony day loam about 12 inches thick. The subsoil is brown very gravely day loam about 48 inches or more in thickness.

Permeability of the Nosrac soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for Rvestock grazing and wild fe habitat

The potential plant community on the Oppio so is mainly Wyoming big sagebrush. Thurber need egrass, antelope bitterbrush, and bluebunch wheatgrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. Singleteaf prayon has invaded. The production of forage is limited by the tow available water capacity. The suitability of this soi for rangeland seeding is very poor. The main imitations are slope and rock fragments on the surface.

The potential plant community on the Nosrac soil is mainly mountain big sagebrush, western needlegrass and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush and Nevada bluegrass. Singleleaf pinyon has invaded. The production of forage is limited by the moderate available water capacity. The suitability of this soil for rangeland seeding

is very poor. The main limitation is slope

If the plant cover is disturbed, protection from flooding is needed to control guilying, streambank cutting and sheet erosion. Slope limits access by livestock and results in overgrazing of the less sloping areas. Because of the density of the pinyon trees in most areas, this unit can be managed as woodland. The reestablishment of the rangeland plant community in some areas may be difficult.

The Oppio soil is limited for roads because of slope and the high content of clay in the subsoil. The Nosrac soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage, a stable base, and an

adequate wearing surface. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Oppio soil is in range site 26-10. The Nosrac softis in range site 26-5.

481—Orizaba sandy loam. This very deep, somewhat poorly drained soil is on nearly level alluvial flats and ake plains. It formed in a luvial and lacustrine material derived dominantly from basic igneous and grantic rocks Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees Fland the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy oam about 3 inches thick. The underlying material to a depth of 60 inches or more is dominantly very pale brown, mottled silty clay loam stratified with loam and silt loam.

Included in this unit are about 5 percent Fallon soils that are so ne and alkali and are on low stream terraces (range site 27-5) and 5 percent Delp soils on stabilized dunes and hummooks (range site 27-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Orizaba soil is moderately slow Avalable water capacity is high. Effective rooting depth is mited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. This soil is moderately salt- and alkaliaffected to a depth of 30 inches.

This unit is used mainly for imgated cultivated crops and livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly basin big sagebrush basin wildrye, creeping wildrye, and black greasewood. The present vegetation in most areas a mainly black greasewood inland sattgrass, rubber rabb tbrush, and fourwing satibush. The production of forage is mited by the content of satts and atkali in the soil and the low average annual precipitation. The water table provides supplemental mosture for plants. The suitability of this unit for rangetand seeding is very poor. The main imitations are the content of saits and alkali and the low average annual precipitation. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is suited to irrigated hay pasture, and cultivated crops. It is limited mainly by the content of saits and alkali and the seasonal high water table. Deeprooted crops are suited to areas where the natural

drainage is adequate or where a drainage system has been installed. The content of safts and alkali can be reduced by using soil amendments such as gypsum by leaching, and by carefully applying impation water. Furrow, border, corrugation, and sprink er impation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of impation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and the moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is timited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses I iw, imigated and VIIw, nonirrigated. It is in range site 26-12.

482—Orizaba loam, strongly saline-alkali. This very deep, somewhat poorly drained soil is on lake plains and alluvial flats. It formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying materia to a depth of 60 inches or more is dominantly very pale brown mottled sifty clay loam stratified with loam and sit loam.

Included in this unit are about 5 percent Dithod soils that are saline and alkali and are in exhows and sand-filled channels (range site 27-5) and 6 percent Parran soils in small basins (range site 27-25) Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Orizaba soil is moderately slow Available water capacity is high. Effective rooting depth is 60 inches or more. Effective rooting depth is mitted by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. Runoff is slow or ponded, and the hazard of water erosion is sight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. This soil is strongly saft- and alkal-affected in the surface layer.

This unit is used for wildlife habitat and livestock grazing.

The potential plant community on this unit is mainly in and saltgrass black greasewood, alkali sacatori, and creeping wildrye. The present vegetation in most areas is mainly pickieweed, seepweed, fourwing saltbush, and inland saltgrass. The production of forage is limited by the low average annual precipitation and the high content of salts and alkali. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main mitations are the content of salts and alkali and the low average annual precipitation. Grazing should be delayed until the solihas drained sufficiently and is firm enough to withstand tramping by livestock.

This unit is imited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclass VIIW, nonirrigated, and in range site 27-5.

483—Orizaba loam, drained. This very deep, somewhat poorly drained soil is on lake plains and stream terraces. The drainage has been altered as a result of changes in the original course of streams or as a result of channel entrenchment. The soil formed in alluvial and acustone deposits derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 niches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying material to a depth of 60 inches or more is dominantly very pale brown, mottled silty clay loam stratified with loam and silt loam.

ncluded in this unit are about 5 percent salt- and alkali-affected Sagouspe soils in sand-filled river channels (range site 27-2) and 5 percent Isoide soils on stabilized sand dunes (range site 27-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Orizaba soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is a ght. This soil is slightly salt- and arkali-affected, it is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for livestock grazing and ringated cultivated crops, it is also used for homesite development.

The potential plant community on this unit is mainly Balley greasewood, black greasewood, shadscale, and Indian ricegrass. The present vegetation in most areas is mainly black greasewood, Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is mitted by the low average annual precipitation

and the content of saits and alkali in the soil. The suitability of this unit for rangeland seeding is very poor. The main limitations are the content of saits and alkaliand the low average annual precipitation. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is suited to imgated hay, pasture, and cultivated crops. It is limited mainly by the content of salts and akiali. The content of salts and akiali can be reduced by using soil amendments such as gypsum, by reaching, and by carefully applying imgation water Furrow, border, corrugation, and sprinkler migation systems are suited to the unit. The method used generally is governed by the crop grown

The main limitation for construction of dwalings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the moderately slow permeability. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the high content of clay in the soil. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses II s, irrigated and VIIs, nonimigated. It is in range site 27-24.

484—Orizaba silty ctay loam. This very deep somewhat poorly drained soft is on all uvial flats, it formed in alluvial and lacustrine material derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feat. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees. Fland the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray sity clay loam about 3 inches thick. The underlying material to a depth of 60 inches or more is dominantly light brownish gray, mottled silty clay loam stratified with loam and silt loam.

Included in this unit is about 10 percent Pizene soils on alluvial fans (range site 26-12)

Permeability of this Orizaba soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. This soil is moderately salt- and a kaliaffected in the surface layer, and it is less salt- and alkali-affected below the surface layer.

This unit is used for imgated cultivated crops, livestock grazing, and wildlife habitat

The potential plant community on this unit is mainly black greasewood, basin wildrye, basin big sagebrush, and creeping wildrye. The present vegetation in most areas is mainly black greasewood, seepweed, inland saltgrass, and fourwing saltbush. The production of forage is imited by the content of salts and alkali in the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main imitations are the content of salts and alkali and the low average annual precipitation, Grazing should be delayed until the soil has drained sufficiently and is I rm enough to withstand trampling by livestock.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is fimited mainly by the content of saits and a kali and the seasonal high water table. Deeprooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The content of saits and alkali can be reduced by using soil amendments such as gypsum, by eaching and by carefully applying irrigation water. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses Illiw, imgated, and V is, nonimigated, it is in range site 26-12

486—Orizaba-Delp association. This map unit is on oid lake plains with superimposed dunes and hummocks. Elevation is 4,300 to 5,000 feet. The average annual predipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Ortzaba loam, strongly salinealkali, and 30 percent Delp sand. The Ortzaba soil is on ake plains, and the Delp soil is on stabilized duries on ake plains.

ncluded in this unit are about 5 percent Parran soils in shallow basins (range site 27-25) and 5 percent Lahontan soils on a uvial flats (range site 27-25) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Orizaba son is very deep and somewhat poorly drained it formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Typically, the surface layer is grayish brown loam about 3 nones thick. The underlying material to a depth of 60 inches or more is dominantly very pale brown, motified sifty clay loam stratified with loam and sit loam.

Permeability of the Onzaba soil is moderately slow Available water capacity is high. Effective rooting depth is 60 inches or more. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. The soil is strongly salt- and alkali-affected in the surface layer, and it is less salt- and a kali-affected below the surface layer.

The Delp soil is very deep and we'll drained it formed in edian sand derived dominantly from granitic rock. Slope is 2 to 15 percent. Typically, the surface layer is light gray sand about 5 inches thick. The subsoil is pale brown loamy sand and sandy loam about 14 inches thick. The substratum to a depth of 60 inches or more is light brownish gray to pale brown, stratified sand and fine sand.

Permeability of the Delp soul is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for wildlife habitat and ilvestock grazing.

The potential plant community on the Orizaba soil is mainly inland saltgrass, black greasewood, and alkal sacaton. The present vegetation in most areas is mainly black greasewood and inland saltgrass. The production of forage is limited by the content of saits and alkaling the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this soil for rangeland seeding is very poor. The main limitations are the high content of saits and alkali and the low average annual precipitation. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand tramping by avestock.

The potential plant community on the Deip soil is mainly Indian ricegrass, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly black greasewood and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer.

The Orizaba soil is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. The Delp soil is limited for roads because of slope. Cutting and filling can be reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled

and maintenance costs reduced by stabilizing areas that have been disturbed.

The Orizaba soi is in capability subclass VIIw, non-rigated, and in range site 27-5. The Delp soil is in capability subclass V is, nonirrigated, and in range site 27-16.

491—Otomo gravelly sandy loam, 4 to 15 percent slopes. This very shallow, well drained soil is on alluvial fan remnants. It formed in alluvian derived from mixed rock sources. Elevation is 5,000 to 5,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees. F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light yellowish brown gravelly sandy loam about 4 inches thick. The upper 6 inches of the underlying material is very pale brown very gravelly sandy loam, the next 13 inches is a hardpan that is cemented with silica and lime, and the lower part to a depth of 60 inches or more is extremely gravelly oamy sand that is cemented with silica and lime. Depth to the hardpan is 6 to 14 inches

Included in this unit are about 6 percent Cleaver soils on alluvial fans (range site 27-18), 5 percent Malpais soils in drainageways and on inset alluvial fans (range site 27-18), and 4 percent Yerington soils in areas of eo an deposits (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Otomo soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wild ife habitat

The potential plant community on this unit is mainly Indian ricegrass, Basey greasewood, and shadscale. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the tow average annual precipitation and very low available water capacity.

This up t is limited for roads because of depth to the hardpan. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18

501—Parran sifty clay loam. This very deep, somewhat poorly drained soil is on take plains. It formed in lacustrine sediment derived from mixed rock sources. Slope is 0 to 2 percent. Elevation is 4,200 to 4,400 feet. The average annual precipitation is about 5 inches, the

average annual air temperature is about 50 degrees F, and the average frost-free penod is 100 to 120 days.

Typically, the surface tayer is grayish brown a ty clay loam about 3 inches thick. The upper 37 inches of the underlying material is dark grayish brown silty clay that is more than 2 percent salt, and the lower part to a depth of 60 inches or more is pale brown, mottled silty clay loam with thin lenses of loamy fine sand.

Included in this unit are about 10 percent Wabuska soils that are strongly saline and alkali and are on low lake terraces (range site 27-5) and 5 percent isolde so s on stratified dunes and hummocks (range site 27-16) included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Parran so: is very slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through March. Runoff is very slow to ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly salt- and alkali-affected.

This unit is used for livestock grazing and wildlife

The potential plant community on this unit is mainly black greasewood, shadscare, and a kell seepweed. The present vegetation in most areas is mainly iod nebush, seepweed, and black greasewood. The production of forage is limited by the low average annual precipitation and the high content of salts and alkall in the soil. The suitability of this unit for range and seeding is very poor. The main limitations are the low average annual precipitation and the content of salts and alkall in the soil.

This unit is limited for roads because of the hazard of frost heaving and the high content of clay in the soil Roads should be provided with a stable base and an adequate wearing surface

This map unit is in capability subclass VIIw nonimpated, and in range site 27-25.

511—Patria fine sand, 4 to 15 percent slopes. This very deep, somewhat excessively drained so: is on the leeward side of hills and occurs as small dunes. It formed in edian sand derived from various kinds of rock Elevation is 4,200 to 6,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost free penod is 100 to 120 days.

Typically, the surface layer is brown fine sand about 5 inches thick. The subsoil is yellowish brown and brown fine sandy loam about 16 inches thick. The substratum to a depth of 60 inches or more is brown loamy fine sand.

Included in this unit are about 5 percent Theoriso s on hillsides (range site 27-9) and 5 percent Malpais solls in drainageways and on associated alluvial fans (range site 27-18) Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Patha soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is stow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on this unit is mainly Indian ricegrass, fourwing saitbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly indian ricegrass. Nevada dalea, hairy horsebrush and Nevada ephedra. The production of forage is mited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer livestock grazing should be managed to protect the unit from blowing and drifting sand.

This unit is timited for roads because of slope. Cutting and filing are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. During prolonged dry periods, roads are difficult to maintain because of the presence of cose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, non-rigated, and in range site 27-9.

512—Patha fine sand, 15 to 30 percent slopes. This very deep, somewhat excessively drained soil is on the eeward side of hills and occurs as small dunes. If formed in eo an sand derived from various kinds of rock E evation is 4,200 to 6,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is light brownish gray fine sand about 5 inches thick. The subsoil is yellowish brown and brown fine sandy loam about 16 inches thick. The substratum to a depth of 60 inches or more is brown loamy fine sand and sand

ncluded in this unit are about 5 percent Theori sols on hill sides (range site 27.9) and 5 percent Malpais soils in drainageways and on associated alliuvial fans (range site 27.18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of sos blowing is high.

This unit is used for livestock grazing and wildlife habital

The potential plant community on this unit is mainly Indian neegrass, fourwing saltbush, needleandthread and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Nevada dalea, hairly horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

This unit is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. During prolonged dry periods, roads are difficult to maintain because of the presence of foose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass V le nonirrigated, and in range site 27-9

514—Patria loamy sand, silty substratum, 0 to 2 percent stopes. This very deep, somewhat excessively drained soil is on old lake plains. It formed in ectian deposits derived from various kinds of rock and in by acustrine sediment. Elevation is 4 200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The subsor is pale brown sandy loam about 7 inches thick. The upper 28 inches of the substratum is light brownish gray and pale brown sand and loamy sand, and the lower part to a depth of 60 inches or more is gray silt loam that has iron oxide mottles.

Included in this unit are about 5 percent Iso de soils on stabilized dunes (range site 27-23) and 5 percent Hough soils in slightly higher lying areas (range site 27-18) Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Patna soil is moderately rapid in the subsoil and moderate in the lower part of the substratum. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is siight. The hazard of soil blowing is high.

Most areas of this unit are used for livestock grazing and homesite development. A few areas are used for irrigated cultivated crops

The potential plant community on this unit is mainly Indian neegrass, fourwing saltbush, needleandthread, and Balley greasewood, The present vegetation in most areas is mainly Indian neegrass, Nevada datea, harry horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

This unit is suited to imigated hay, pasture, and cultivated crops. It is limited mainly by the moderately rapid permeability and the moderate available water capacity. The rapid movement of water in the upper part of the soil should be considered when selecting the migation method or design. Water should be applied in amounts sufficient to wet the root zone but in amounts small enough to minimize the leaching of plant nutrients. Because of the mited depth to sand in some areas, cuts required for leveling should be less than 3 inches deep

This unit is well suited to the construction of dwellings. The main limitations for septic tank absorption fields are the rapid movement of water in the upper part of the soil and the sitty acustrine sediment in the lower part of the soil. Care is needed to prevent a water table from perching above the lower part of the substrature.

Roads generally can easily be constructed and maintained on this unit; however, during prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of son blowing.

This map unit is in capability subclasses Illa, lingated, and V is, noningated. It is in range site 27-9

516—Patna sand, 0 to 4 percent slopes. This very deep, somewhat excessively drained soil is on take plains. It formed in sandy lacustrine and eclian deposits derived dominantly from andesitic and granitic rock. Elevation is 4,200 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free penod is 100 to 130 days.

Typically the surface layer is brown sand about 5 nones thick. The subsoil is yellowish brown and brown fine sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is brown loamy sand.

Included in this unit are about 8 percent Isolde soils on stablized dunes and hummocks (range site 27-23) and 7 percent Hough soils in slightly higher lying areas (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Patria soil is moderately rapid. Available water capacity is moderate. Effective roolling depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil browing is high.

This unit is used for livestock grazing and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread and Bailey greasewood. The present vegetation in most areas is mainly Indian neegrass, Nevada dalea, hairy horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Roads can easily be constructed and maintained on this unit. During prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of sol blowing.

This map unit is in capability subclass Vils, noningated, and in range site 27-9

517—Patna-Hough-Playas association. This map unit is on lake plains. Slope is 0 to 2 percent. Elevation is 4,200 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 40 percent Patha loamy sand, 30 percent Hough sand, and 20 percent Playas. The Patha soil is on low, broad dunes, the Hough soil is on lake plains, and the Playas are in blowout areas that receive runoff water from surrounding soils.

Included in this unit are about 6 percent Rusty soils in slightly higher lying areas (range site 27-9) and 4 percent Isolde soils on stabilized dunes (range site 27-23) Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Patna soil is very deep and somewhat excessively drained. It formed in sandy abuvia and edian deposits derived from various kinds of rock. Typically the surface layer is brown toamy sand about 5 inches thick. The subsoil is yellowish brown and brown fine sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is brown loamy fine sand.

Permeability of the Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Hough soil is very deep and we'll drained. It formed in wind-worked lacustrine and alluvial sediment derived dominantly from intrusive and extrusive igneous rock. Typically, the surface tayer is light brownish gray sand about 10 inches thick. The subsoil is brown sandy dray loam about 11 inches thick. The substratum to a depth of 60 inches or more is brown, stratified fine sand to coarse sand and has many iron exide mothes.

Permeability of the Hough soil is moderate to a deoth of 21 inches and very rapid below this depth. Available water capacity is moderate. Effective rooting depth is 60 nches or more. Runoff is slow, and the hazard of water erosion is siight. The hazard of soil blowing is moderate.

Playas consists of barren, nearly level areas that are slightly lower than surrounding areas. The surface layer is moderately fine textured or fine textured. Areas of Playas are subject to frequent, brief to long periods of ponding after heavy rains.

This unit is used for §vestock grazing and wildlife habitat.

The potential plant community on the Patna sou is mainly indian ricegrass: fourwing saltbush, and Bailey greasewood. The present vegetation in most areas is mainly indian ricegrass, datea, hairy horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main mitations are the low average annual precipitation and the texture of the surface layer

The potential plant community on the Hough soil is mainly indian ricegrass shadscale. Bailey greasewood. and bud sagebrush. The present vegetation in most areas is mainly littleleaf horsebrush, Indian neegrass, and Douglas rabbitbrush. The production of forage is limited. by the low average annual precipitation and the texture of the surface layer. The suitability of this soil for range and seeding is very poor. The main limitation is the iów average annua, precipitation,

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclass VIIs, non regated. The Patha soil is in range site 27-9, and the Hough so, is in range site 27-18.

516—Patha sandy loam, occasionally flooded, 0 to 2 percent slopes. This very deep, somewhat excessively drained soil is on alluvial terraces. It formed n alluvium derived from various kinds of rock. Elevation 8 4 400 to 4 800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average trost-free period is 100 to 130 days

Typically, the surface layer is light gray sandy loam. about 3 inches thick. The subsoil is vellowish brown sandy oam about 27 nihes thick. The substratum to a depth of 60 inches or more is pale brown and light gray gravelly coarse sand

noluded in this unit is about 10 percent Malpais soils

n dra nageways (range site 27 19)

Permeability of this Patha soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional brief periods of flooding in May through August.

This unit is used for livestock grazing. It can be used for impated cultivated crops if it is protected from

The potential plant community on this unit is mainly Indian neegrass, fourwing saltbush, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Basey greasewood, and shadscale. The production of forage is limited by the low average annual precipitation. The su tability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the occasional periods of flooding. It is difficult to establish and maintain. structures that can protect the unit from flash flooding

This map unit is in capability subclass VIIs. nonimigated, and in range site 27-9

519-Patna loam, 0 to 2 percent slopes. This very deep, somewhat excessively drained soil is on a livia fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days

Typically, the surface layer is light gray toam about 7. inches thick. The subsoil is yellowish brown sandy loam about 27 inches thick. The substratum to a depth of 60 inches or more is stratified, pale brown and light gray loamy sand and sand

Included in this unit is about 10 percent Maipais soils. in drainageways.

Permeability of this Patna soil is moderately repid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for imgated cultivated crops and wild (le habitati

This unit is well suited to irrigated cultivated crops. Furrow, border, corrugation, and sprink or impation. systems are suited to the unit. The method used generally is governed by the crop grown. Because of the underlying sandy material, deep cuts should be avoided. when leveling.

Roads can easily be constructed and maintained on

This map unit is in capability subclasses is impated, and Vflc, nonirrigated.

521—Pizene sandy loam, 0 to 4 percent slopes. This very deep, well drained soil is on a uvia fans. It formed in alluvium derived from various kinds of rock Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 130 days.

Typically, the surface layer is light brownish gray sandy oam about 6 inches thick. The subsoil is brown sandy clay loam about 15 inches thick. The substratum to a depth of 60 inches or more is light brownish gray fine sandy loam.

ncluded in this unit are about 6 percent Patha soils on the upper part of attuvial fans bordering low hills (range site 27-9) and 4 percent Orizaba soils that are drained by channel entrenchment and are on toe slopes of alluvial fans (range site 27-24). Included areas make up about 10 percent of the total acreage.

Permeability of this Pizene soil is moderately slow Ava able water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the subso-

This unit is used for irrigated cultivated crops, livestock

grazing, and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood, basin big sagebrush, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main ilmitation is the content of salts and alkali in the subso. Excess salts in the soil can be flushed out by using heavy, periodic applications of water.

Roads can easily be constructed and maintained on

this unit.

This map unit is in capability subclasses lie, irrigated, and V is, nonirrigated. It is in range site 26-12.

522—Pizene-Orizaba complex. This map unit is on a uvial fans and allowal flats. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Pizene sandy loam and 35 percent Orizaba sitty clay loam. The Pizene soil is in higher lying areas on fans and terraces, and the Orizaba

soil s on a luvial flats

ncluded in this unit are about 10 percent Delp soils on stabilized ow dunes and hummocks (range site 27-16) and 5 percent Parran soils in small shallow basins (range site 27-25) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Pizene soil is very deep and well dramed. It formed in all unium derived from various kinds of rock. Typically, the surface layer is light brownish gray sandy pam about 6 inches thick. The subsoil is brown sandy clay loam about 15 inches thick. The substratum to a

depth of 60 inches or more is right brownish gray time sandy loam.

Permeability of the Pizene soil is moderately slow Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and a kali-affected in the subsoil.

The Orizaba soil is very deep and somewhat poorly drained. It formed in alluvia, and acustrine material derived from various kinds of rock. Typically the surface layer is grayish brown sifty clay loam about 3 inches thick. The underlying material to a depth of 60 inches or more is very pale brown, mottled sity clay loam that has some strata of loam and silt loam.

Permeability of the Onzaba sort is moderately slow Available water capacity is high. Runoff is slow or pended, and the hazard of water erosion is slight. The hazard of soil blowing is slight. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. This so is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. The soil is strongly salt- and a kali-affected to a depth of 36 inches, and it is a ghtly to moderately salt- and alkay-affected below this depth.

This unit is used for livestock grazing and wild fe habitat

The potential plant community on the Pizene soil is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood and basin big sagebrush. The production of torage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Orizaba soil is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood and basin big sagebrush. The production of forage is limited by the content of salts and alkali in the soil and the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the content of saits and alkali in the soil and the low average annual precipitation.

Roads can easily be constructed and maintained on this Pizene soil. The Onzaba soil is limited for roads because of the potential for frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-12

523—Pizene loam, 0 to 2 percent slopes. This very deep, we'll drained soil is on stream terraces, it formed in lacustrine sediment overlain by alluvium derived from

various kinds of rock. Elevation is 4 200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface tayer is light brownish gray loam about 6 inches thick. The subsoil is brown sandy clay oam about 15 inches thick. The substratum to a depth of 60 inches or more is light brownish gray fine sandy loam.

Included in this unit are about 6 percent Patha soils on the upper part of alluvial fans bordening low hills (range site 27-9) and 4 percent Orizaba soils that are drained by channel entrenchment and are on toe slopes of alluvial fans (range site 27-24). Included areas make up about 10 percent of the total acreage. The percentage values from one area to another.

Permeability of this Pizene soil is moderately slow Avallable water capacity is high. Effective rooting depth is 60 nones or more. Runoff is slow to ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is slightly salt- and alkalial-affected in the subsoil.

This unit is used for irrigated cultivated crops, livestock grazing and wildlife habitat

The potential plant community on this unit is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood and basin big sagebrush. The production of forage is imited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitation is the content of saits and alkali in the subsor. Excess saits in the soil can be flushed out by using heavy, periodic applications of water.

Roads can easily be constructed and maintained on this on t

This map unit is in capability subclasses lis, imigated, and Vila nonimigated, it is in range site 26-12.

524—Pizene loamy fine sand, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans and stream terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray loamy fine sand about 6 inches thick. The subsoil is brown sandy clay loam about 15 inches thick. The substratum to a depth of 60 inches or more is light brownish gray fine sandy loam.

Included in this unit are about 6 percent Patria soils on the upper part of alluvial fans (range site 27-9), 5 percent soide soils on stabilized dunes and hummocks (range site 27-23), and 4 percent Orizaba soils that are drained by channel entrenchment and are on toe slopes of alliuvial (ans (range site 27-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Pizene soil is moderately slow Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. The soil is slightly salt, and alkalialifected in the subsoil.

This unit is used for imigated cultivated crops, livestock grazing, and wild fe habitat

The potential plant community on this unit is mainly black greasewood, Indian needleandthread. The present vegetation in most areas is mainly black greasewood and Indian needrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitation is the content of saits and alkali in the subsoil. Excess salts in the soil can be flushed out by using heavy, periodic applications of water. Soil blowing can be reduced by returning crop residue to the soll and practicing minimum tillage.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses I s, irrigated, and Vils, nonirrigated. It is in range site 27-16

531—Perazzo gravelly loam, 0 to 2 percent slopes. This very deep, well drained soil is on old alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray gravelly loam about 4 inches thick. The subsocial brown very gravelly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is paid brown extremely gravelly loamy sand.

Included in this unit are about 8 percent Malpa's so is on inset alliuvial fans and in drainageways (range site 27-18), 4 percent Rawe soils on alliuvial fan remnants (range site 27-18), and 3 percent Patna soils on stabilized low dunes and hummooks (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Perazzo soi is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated cultivated crops and homesite development.

The potential prant community on this unit is mainly shadscale, Indian ricegrass, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Indian neegrass, and Bailey greasewood. The production of lorage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main mitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitation is the low available water capacity. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

This unit is we'll suited to the construction of dwellings. The main firmitation for septic tank absorption fields is the rapid permeability in the lower part of the soil. Special design may be needed to avoid polluting ground water

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses fills, imgated, and Vills, non-rigated it is in range site 27-18.

532—Perazzo gravelly loam, 2 to 8 percent slopes. This very deep well drained soil is on old altuvial fans. It formed in a uvium derived from various kinds of rock. E evation is 4 550 to 5,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer averages gravelly loam that is light brownish gray. It is about 4 inches thick. The subsoil averages very grave by sandy clay loam that is brown. It is about 9 inches thick. The upper 8 inches of the substratum is pinkish gray extremely gravelly sandy loam, and the lower part to a depth of 60 or more inches is pale brown extremely gravelly loamy sand.

ncluded in this unit are about 8 percent Malpais soils on neet alluvial fens and in drainageways (range site 27-18), 4 percent Rawe soils on alluvial fan remnants (range site 27-18), and 3 percent Patna soils on stabilized low dunes and hummocks (range site 27-9) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Perazzo soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated cultivated crops and homesite development.

The potential plant community on this unit is mainly shadscale, Bailey greasewood, Indian neegrass, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Indian ricegrass, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitations are slope and the low available water capacity. To avoid overirigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs. Sprink er irrigation is best suited to this unit because of the slope and the very gravelly material that would be exposed if cuts were made to level the soil for other methods of irrigation.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is the rapid permeability of the lower part of the soil Special design may be needed to avoid poliuting ground water.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses 1 e, migated and Vills, nonimigated, it is in range site 27-18

534—Perazzo very gravelly sandy foam, 8 to 15 percent slopes. This very deep, well drained soi is on alluvial fan remnants. It formed in alluvium derived from vanous kinds of rock. Elevation is 4,600 to 5,200 feet. The average annual precipitation is about 5 inches the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 4 inches thick. The subsolis brown very gravelly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is pale brown extremely gravelly loamy sand.

Included in this unit are about 8 percent Malpais so son inset alluvial fans and in drainageways (range site 27-18), 4 percent Rawe soils on alluvial fan remnants (range site 27-18), and 3 percent Patha soils on stabilized low dunes and hummocks (range site 27-9) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Perazzo soil is moderately slow Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of sor blowing is slight.

This unit is used mainly for livestock grazing. It is a so used for homesite development.

The potential plant community on this unit is mainly shadscale, Indian ricegrass, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Indian neegrass, and Bailey

greasewood. The production of forage is limited by the ow average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The main mitation of this unit for the construction of dwellings is slope. The main limitation for septic tank absorption fields is the rapid permeability of the lower part of the soil. The ground water moves laterally through the lower part of the soil.

Roads should be constructed in the less sloping areas of this unit

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

535—Perazzo very stony sandy loam, 4 to 8 percent slopes. This very deep, well drained soil is on oid a luvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4.550 to 5,200 feet. The average annual pracipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface rayer is light brownish gray very stony sandy loam about 4 inches thick. The subsoil is brown very gravelly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is pale brown extremely gravelly loamy sand.

Included in this unit are about 10 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18) and 5 percent Rawe soils on alluvial fan remnants range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage vanes from one area to another.

Permeability of this Perazzo soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Punoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is sight.

This unit is used mainly for livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly shadscale and an ricegrass, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale. Indian ricegrass, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is the rapid permeability of the lower part of the soil. Special design may be needed to avoid polluting ground water

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclass VIIs, noningated, and in range site 27-18

541—Uripnes-Chill-Rock outcrop association. This map unit is on hills and mountains. Slope is 4 to 50 percent. Elevation is 4,500 to 6,500 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 55 percent Unphes very gravelly sandy loam that has slopes of 30 to 50 percent, 20 percent Chill gravelly sandy loam that has slopes of 4 to 15 percent, and 15 percent Rock outcrop. The Unphes soil is on side slopes of hills and mountains of hills and mountains; the Chill soil is on broad tops, shoulders and plateaus; and Rock outcrop is on rims.

Included in this unit are about 6 percent Isoide soils in pockets on the leeward side of his and mountains (range site 27-23) and 4 percent Malpais soils on short alluvial fans and in drainageways (range site 27-18) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Unpnes soil is very shallow and well drained, it formed in residuum and colluvium derived dominantly from granitic rock. Typically, the surface layer is grayish brown and brown very gravely sandy loam about 9 inches thick. Below this to a depth of 30 inches is weathered granitic bedrock that can be dug with hand tools. Hard bedrock is at a depth of 30 inches. Depth to weathered bedrock ranges from 3 to 14 inches.

Permeability of this Unipnes soil is moderately rapid Available water capacity is very low. Effective rooting depth is 3 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Chill soil is very shallow and well drained it formed in residuum derived dominantly from granitic rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly sandy clay loam about 4 inches thick. Weathered granitic bedrock is at a depth of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of this Chik soil is moderately low Available water capacity is very slow. Effective rooting depth is 6 to 14 inches. Flunoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of grantic bedrock.

This unit is used for livestock grazing and wildlife habitat.

The potential and present plant community on the Uripnes soil is mainly desert needlegrass, littleleat horsebrush, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and steepness of slope.

The potential plant community on the Chill soil is mainly desert needlegrass, Thurber needlegrass, and Avorning big sagebrush. The present vegetation in most areas is mainly desert needlegrass and Wyoming big sagebrush. The production of forage is limited by the very low available water capacity. The suitability of this soil for range and seeding is very poor. The main imitation is the very low available water capacity.

The Uriones soil is limited for roads because of steepness of slope. The weathered bedrock can be excavated with power equipment. Cutting and filling are reduced by building roads in the less sloping areas of the Chill so: Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed

This map unit is in capability subclass Vlis, nonimigated. The Uniones soil is in range site 27-17, and the Chill so: is in range site 26-11.

551—Rawe gravelly sandy loam, 4 to 15 percent stopes. This very deep, well drained soil is on old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4 400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light gray gravelly sandy. loam about 1 inch thick. The subsoil is brown gravelly clay about 9 inches thick. The substratum to a depth of 60 inches or more averages very gravelly sandy loam.

that is light brownish gray.

ncluded in this unit are about 6 percent Lox soils on fans in slightly lower lying areas (range site 27-24), 5 percent Patha soils on stabilized hummocks (range site 27-9) and 4 percent Perazzo soils on alluvial fan remnants (range site 27-18). Indiuded areas make up about 15 percent of the total acreage. The percentage vanes from one area to another

Permeability of this Rawe soil is slow to a depth of 10 nches and moderately rapid below this depth. Available water capacity is low. Effective rooting depth is 60 nches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is

slight.

This unit is used for irvestock grazing and wildlife

The potential plant community on this unit is mainly shadscare Barley greasewood, Indian ricegrass, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Balley greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitation is the low average annual precipitation.

Cutting and filling are reduced by building roads in the ess sloping areas of this unit.

This map unit is in capability subclass Vills. nonimpated, and in range site 27-18.

552-Rawe complex, 2 to 4 percent slopes. This map unit is on old alluvial fans. E evation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 130 days.

This unit is 45 percent Rawe grave ly sandy loam and 40 percent Rawe loamy sand. The components of this unit are so intricately interminded that I was not practical to map them separately at the scale used

Included an this unit are about 5 percent, solde so s on stabilized low duries and hummocks (range site 27-23), 5 percent Maipais soils in drainageways and on associated alfuvial fans (range site 27-18), and 4 percent Patha soils on stabilized hummocks (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Rawe gravelly sandy loam is very deep and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light gray gravelly sandy loam about 1 inch thick. The subsoil is brown gravelly clay about 9 inches thick. The substratum to a depth of 50 inches or more is light brownish gray very gravelly sandy loam

Permeability of the Rawe gravely sandy loam is slow to a depth of 10 inches and moderately rapid below this depth. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of so-

blowing is slight

The Rawe loamy sand is very deep and we'l drained it formed in mixed alluvium overlain by wind-deposited material derived dominantly from basic igneous rock Typically, the surface layer is light brownish gray loamy sand about 12 inches thick. The subsoil is brown gravely clay about 9 inches thick. The substratum to a depth of 60 inches or more is light brownish gray grave ly sandy loam.

Permeability of the Rawe loamy sand is slow to a depth of 21 inches and moderately rapid below this depth. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and wild fehabitat

The potential and present plant community on the Rawe gravelty sandy loam is mainly Indian neegrass. Barley greasewood, and shadscale. The potential plant community on the Hawe learny sand is mainly Indian neegrass, fourwing saltbush, and needleandthread. The present vegetation in most areas is mainly Indian ncegrass and shadscale. Livestock grazing should be managed to protect the soils from blowing and drifting

sand. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclass VIIs, nonringated. The Rawe gravelly sandy loam is in range site 27-18, and the Rawe loamy sand is in range site 27.9.

553—Rawe-Malpais association. This map unit is on gently sloping to strongly sloping dissected alluvial fans and in associated drainageways. Slope is 2 to 15 percent. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Rawe gravelly sandy loam and 25 percent Maipais gravelly sandy loam. The Rawe soil 8 on remnants of old alluvial lans, and the Malpais solution of the maintenance of the maintenan

s in drainageways and on alluvial fan skirts.

Included in this onit are about 6 percent Perazzo soils on alluvial fans (range site 27-18), 5 percent Cleaver so sign alluvial fans (range site 27-18), and 4 percent Patha soils on stablized low dunes and hummooks Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Rawe soil is very deep and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light gray gravelly sandy loam about 1 inch thick. The subsoil is brown gravelly clay about 9 inches thick. The substratum to a depth of 60 inches or more is light brownish gray very gravelly sandy loam.

Permeability of the Rawe soil is slow to a depth of 10 inches and moderately rapid below this depth. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is

slight.

The Malpais soil is very deep and well drained. It formed in alluvium derived from various kinds of rock Typically, the surface layer is pale brown gravelly sandy loam about 3 inches thick. The underlying material to a depth of 60 inches or more is brown to grayish brown extremely cobbly sandy loam and very gravelly sandy loam.

Permeability of the Malpas soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for ivestock grazing and wildlife habitat

The potential and present plant community on this unit is mainly Indian ricegrass, Bakey greasewood, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the Malpais soil create road hazards and increase

maintenance cost

This map unit is in capability subclass VIIs, noningated, and in range site 27-18

561—Rebel sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on at uvia fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,700 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown sandy loam about 14 inches thick. The subsoil and substratum to a depth of 60 inches or more average sandy loam that is

vellowish brown

Included in this unit are about 6 percent Haybourne soils on the upper end of alluvial fans (range site 26-16) and 4 percent Hotsprings soils in narrow stringers throughout the unit (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Recel soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil

blowing is slight.

This unit is used for Irvestock grazing, wildlife habitat

and impated cultivated crops.

The potential plant community on this unit is mainly Wyoming big sagebrush, Thurber neediegrass, and Indian neegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, Anderson peachbrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation and the moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

This unit is well suited to impated ou tivated crops Furrow, border, corrugation, and sprinkler impation systems are suited to the unit. The method used generally is governed by the crop grown. The moderately rapid movement of water in the soil should be considered when selecting and designing irrigation.

ystems.

If surface dramage and a stable base are provided damage from frost heaving is minimized on roads on this unit.

This map unit is in capability subclasses ltc. impated. and Vici nonirrigated, it is in range site 26-16.

571—Reno gravelly sandy loam, 2 to 4 percent slopes. This moderately deep, well drained soil is on old a uviai fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,300 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F. and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light gray gravelly sandy. loam about 5 inches thick. The subsoil is dark yellowish brown gravery clay about 22 inches thick. The next layer is a strongly silica- and lime-cemented hardpan about 14 nches thick. Below this to a depth of 60 inches or more is brown extremely grave ly loamy sand. Depth to the

hardpan ranges from 20 to 40 inches.

noluded in this unit are about 6 percent Fulstone soils on convex alluvial fans (range site 26-25), 6 percent Ackley soils on toe slopes of a luvial fans (range site 26-16), and 3 percent Veta soils in drainageways and on nset fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Reno soil is very slow. Available water capacity is low or moderate. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is

This unit is used for livestock grazing and homesite development

The potential plant community on this unit is mainly low sagebrush. Thurber needlegrass, Sandberg bluegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush. bottlebrush squirreltail, and Sandberg bluegrass. The production of forage is limited by the low average annual predipitation, restricted available water capacity, and restricted rooting depth. The suitability of this unit for range and seeding is poor. The main limitations are the low average annual precipitation, restricted available water capacity, and the thin surface, ayer,

The main limitation for construction of dwellings is the content of highly expansive clay. If buildings are constructed on this unit, properly designing foundations. and footings and diverting funoff away from buildings help to prevent structura, damage because of shrinking and swelling. Excavation for building sites is limited by

the hardpan

The main limitations for septic tank absorption fields are the hardpan, the very slow permeability above the hardpan, and rapid permeability below the hardpan. Use of sandy backfit for the trench and long absorption lines. heips to compensate for the very slow permeability. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan. Heavy equipment is needed for excavation.

Because the soil is rapidly permeable below the hardpan, special design may be needed to avoid polluting the ground water

This unit is limited for roads because of the content of highly expansive clay that has low load bearing capacity. Roads should be provided with a stable base and an adequate wearing surface

This map unit is in capability subclass VIIs. non-mgated, and in range site 26-25

572—Reno cobbly sandy loam, 4 to 15 percent slopes. This moderately deep, well drained soil is on old altuvial fans. It formed in alluvium derived from various kinds of rock. Flevation is 4,400 to 5,400 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray cobbly sandy loam about 5 inches thick. The subsoil is dark yellowish brown gravally clay about 22 inches thick The next layer is a silica- and ime-cemented hardpan about 14 inches thick. Below this to a depth of 60 inches. or more is very gravelly loamy sand. Depth to the hardpan ranges from 20 to 40 inches.

Included in this unit are about 8 percent Fulstone soils on convex alluvial fans (range site 26-25). 4 percent Ackley soils on toe slopes of alluvia, fans (range site 26and 3 percent Veta soils in dra nageways and on inset fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Reno soil is very slow. Available water capacity is low or moderate. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soblowing is slight

This unit is used for livestock grazing and homesite

The potential plant community on this unit is mainly low sagebrush, Thurber needlegrass, Sandberg bluegrass, and bottlebrush squirreltad. The present vegetation in most areas is mainly low sagebrush, Sandberg bluegrass, and bott ebrush sourreltail. The production of forage is limited by the low average annual. precipitation, restricted available water capacity, and restricted rooting depth. The suitability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation, restricted available water capacity, and the thin surface layer

The main implation for construction of dwellings is the content of highly expansive clay in the soil. If buildings are constructed on this unit, properly designing foundations and footings and diverting runoff away from buildings help to prevent structural damage because of shraking and swelling. Excavation for building sites is limited by the hardpan.

The main imitations for septic tank absorption fields. are the hardpan, the very slow permeability above the hardpan, and rapid permeability below the hardpan. Use of sandy backfil for the trench and long absorption lines. he ps to compensate for the very slow permeability. The operation of septic tank absorption fields can be moreyed by placing the absorption lines below the hardpan. Heavy equipment is needed for excavation. Because the sor is rapidly permeable below the hardpan, special design may be needed to avoid polluting the ground water.

This unit is limited for roads because of the content of highly expansive clay that has low load-bearing capacity. Roads should be provided with a slable base and an

adequate wearing surface.

This map unit is in capability subclass Vils. nonkrigated and in range site 26-25

581—Risue extremely stony loam, 8 to 15 percent slopes. This shallow, well drained soil is on very old dissected a uvia fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches the average annual air temperature is about 50 degrees F and the average trost-tree period is 110 to 130 days.

Typically the surface layer is light gray extremely atony loam about 1 inch thick. The subsoil averages clay that is dark ye owish brown. It is about 15 inches thick. The next layer is an indurated is ica- and lime-cemented hardpan about 17 inches thick. Below this to a depth of 60 inches or more is stratified, weakly to strongly shoal and lime-camented very gravely sandy loam. Depth to the hardpan ranges from 10 to 20 inches

ncluded in this unit are about 8 percent Cleaver soils. on alluvial fans (range site 27-18), 3 percent Perazzo. soils on inset alluvial fans (range site 27-18), 2 percent Maipais soils in drainageways and on inset fans (range site 27-18) and 2 percent Weens soils on eroded side slopes (range site 27-26). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Risue soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20. inches. Runoff is medium, and the hazard of water. erosion is sight. The hazard of soil blowing is slight.

This unit is used for rivestock grazing and wildlife.

The potential plant community on this unit is mainly ndian ricegrass, shadscale, bud sagebrush, and Bailey greasewood. The present vegetation in most greas is mainly shadscale, bud sagebrush, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range, and seeding is very poor. The main mitations are the low average annual precipitation, the thin and extremely story surface layer, and the clay

subsoll. The stones and cobbies on the surface interfere with use of mechanical equipment and the movement of Irvestock.

This unit is limited for roads because of the shallow depth to the hardpan and the content of highly expansive clay in the so?. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface

This map unit is in capability subclass VIIs ponimigated, and in range site 27-18.

582—Risue gravelly loam, 0 to 8 percent alppes. This shallow, well drained soil is on very old dissected. alluvial lans. It formed in alluvium derived dominant, v. from basic igneous rock. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F. and the average frost-free period is 110 to 130 days.

Typically, the surface layer is light gray gravelly camabout 1 inch thick. The subsoil is dark yellowish brown clay about 15 inches thick. The next laver is a silce- and lime-cemented hardpan about 17 inches thick. Below. this to a depth of 60 inches or more is stratified, weakly to strongly silica- and time-cemented very grave ly sandy loam. Depth to the hardpan ranges from 10 to 20 inches

Included in this unit are about 10 percent Cleaver so s. on alluvial fans (range site 27-18). 3 percent Perazzo soils on Inset alluvial fans (range eite 27-18), and 2 percent Malpaia soils in drainageways and on inset fans trange site 27-18). Included areas make up about 15. percent of the total acreage. The percentage varies from one area to another

Permeability of this Risue soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20. inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is a ght

This unit is used for livestock grazing and wildlife. habitat

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bud sagebrush, and Balley greasewood. The present vegetation in most areas a mainly shadscale, bud sagebrush, and Balley greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation, the thin surface layer, and the clay subso-

This unit is limited for roads because of the shallow depth to the hardpan and content of highly expansive clay in the soil. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base. and an adequate wearing surface.

This map unit is in capability subclass Vils. nor#mgated, and in range site 27-18.

591—Rose Creek loam. This very deep, poorly drained soil is on narrow flood plains. It formed in loamy and sandy at usuam derived from various kinds of rock. Slope ranges from 0 to 2 percent but is dominantly less than 0.5 percent. E-evation is 4,000 to 4,500 feet. The average annual precipitation is about 7 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 18 inches thick. The underlying material to a depth of 60 inches or more is stratified, light gray to pale brown silt loam to gravelly loamy sand. In some areas the surface layer is gravelly or is slightly saline and alkale.

notuded in this unit are about 8 percent Fallon soils adjacent to rivers (range site 27-2), 5 percent Dithod soils on stream terraces (range site 27-2), and 2 percent Fernley soils in sand-filled stream channels (range site 27-4) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Rose Creek soil is moderately rapid. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.0 feet from December through July Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to common, brief to long periods of flooding from February through June.

Most areas of this unit are used for hay and native pasture. A few areas are used for livestock grazing.

The potential plant community on this unit is mainly rushes sedges, tufted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly creeping wildrye, willow, Woods rose, and sedges. The production of forage is limited by the the drop in the level of the water table ate in summer. The suitability of this unit for range and seeding is fair. The main limitation is welness, which restricts the use of machinery in spring. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand tramping by fivestock.

If this unit is used for hay and pasture, the main tim tations are common periods of flooding and wetness. Wetness limits the choice of plants and the period of cutting or grazing and increases the risk of winterfell, ringation water can be applied by the border, corrugation, and sprinkler methods. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

This unit is limited for roads because of common periods of flooding and a severe hazard of frost heaving. Flooding can be controlled only by use of major flood control structures. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IVw, imgated, and Vw, nonimigated. It is in range site 27-4.

601—Rusty sand, 0 to 2 percent slopes. This very deep, well drained soil is on take plains. It formed in wind-worked lacustrine sediment derived dominantly from mixed igneous rock. Elevation is 4,150 to 4,300 feet. The average annual precipitation is about 5 inches the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 130 days.

Typically, the surface layer averages sand that is light gray it is about 9 inches thick. The subsci is brown sandy clay loam about 13 inches thick. The substratum to a depth of 60 inches or more is very paie brown stratified sand to silt loam.

Included in this unit are about 8 percent Patha soils in slightly elevated areas of edian deposits (range site 27-9), 5 percent Isolde soils on stabilized dunes and hummocks (range site 27-23), and 2 percent small, shallow Playas. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Rusty son is moderately slow Available water capacity is moderate. Effective rooting depth is 50 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. This soil is slightly salt- and alkallaffected below a depth of 9 inches.

This unit is used for livestock grazing and homesite development. It can be used for irrigated cultivated crops if water is made available.

The potential plant community on this unit is mainly fourwing saltbush, Bailey greasewood, Indian ricegrass and needleandthread. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and ittleteal horsebrush. The production of forage is mitted by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitations are the low average annual precipitation and the sandy texture of the surface layer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

This unit is well suited to the construction of dwellings if this unit is used for septic tank absorption fields, the limitation of moderately slow permeability can be overcome by increasing the size of the absorption field

Roads can easily be constructed and maintained on this unit, however, unless surface drainage is provided excess water accumulates and roads are damaged by frost heaving.

This map unit is in capability subclasses I is, migated, and VIIs, nonimgated. It is in range site 27-9.

603—Rusty-isolde complex, 0 to 15 percent slopes. This map unit is on wind-worked oid ake plains. Elevation is 4,150 to 4,300 feet. The average annua precipitation is about 5 inches, the average annua air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is about 55 percent Rusty sand that has slopes of 0 to 2 percent and 30 percent isolde fine sand that has slopes of 0 to 15 percent. The Rusty soil is in nearly evel areas and the Isolde soil is on dunes and hummocks. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

ncluded in this unit are about 10 percent Patria soils in slightly elevated areas of eolian deposits (range site 27.9) and 5 percent small, sharlow Playas, included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Rusty soil is very deep and well drained. It formed in lacustrine sediment derived dominantly from mixed igneous rock. Typically, the surface layer is light gray sand about 9 inches thick. The subsoil is brown sandy clay learn about 13 inches thick. The substratum to a depth of 60 inches or more is pale brown, strat-fied sand to sift learn.

Permeability of this Rusty soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. This soil is slightly salt- and alkali-affected below a depth of 9 inches.

The Iso de soi is very deep and excessively drained. It formed in equan deposits derived from various kinds of rock. Typically, the surface layer is pale brown fine sand about 7 nones thick. The underlying material to a depth of 60 inches or more is pale brown fine sand.

Permeability of this Isolde soil is very rapid. Available water capacity is low. Effective rooting depth is 60 nones or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing.

The potential plant community on the Rusty soit is mainly Indian ricegrass. Balley greasewood, fourwing saltbush and needleandthread. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this so for range and seeding is very poor. The main mitations are the low average annual precipitation and the sandy texture of the suiface layer.

The potential plant community on the isolde soil is mainly harry horsebrush, indian ricegrass, fourwing saitbush, and needleandthread. The present vegetation in most areas is mainly hairy horsebrush, dalea, and notian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for range and seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer.

Livestock grazing should be managed to protect this

unit from blowing and drifting sand.

Roads can easily be constructed and maintained on this unit. Unless surface drainage is provided, however,

excess water accumulates and roads on the Rusty so: are damaged by frost heaving. When the Isoide soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing. Erosion is minimized and maintenance cost reduced by providing roads with adequate surface dramage, a stable base, and a durable wearing surface.

This map unit is in capability subclasses. Its irrigated, and Vils, nonimigated. The Rusty soil is in range site 27-9, and the Isolde soil is in range site 27-23.

604—Rusty-Playas complex, 0 to 2 percent slopes. This map unit is on lake plains. Elevation is 4,150 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is about 55 percent Rusty sand that has slopes of 0 to 2 percent and 30 percent P ayas. The Rusty soil is on the main part of take plains, and the Playas are in sightly depressional, blowout areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Patha soils in slightly elevated areas of exian deposits (range site 27-9) and 5 percent isoide soils on stabilized dunes, mostly on the leeward side of the Playas (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Rusty soil is very deep and wall drained, it formed in wind-worked lacustrine sediment derived dominantly from mixed Igneous rock. Typically the surface ayer is light gray sand about 9 inches thick. The subsoil is brown sandy clay loam about 13 inches thick. The substratum to a depth of 60 inches or more is pale brown, stratified sand to silt loam.

Permeability of this Rusty soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow and the hazard of water erosion is slight. The hazard of soil blowing is high. This soil is slightly salt- and alkalitatected below a depth of 9 inches

Playas consists of barren, nearly level areas that are somewhat lower lying than surrounding areas. The surface layer is moderately fine textured or fine textured. Areas of Playas are subject to trequent, brief to long periods of ponding after heavy rains.

This unit is used for livestock grazing and homes te development

The potential plant community on the Rusty soi is mainly Bailey greasewood, fourwing sa toush, Indian ricegrass, and needleandthread. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and littleleat horsebrush. The production of forage is

firmited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the texture of the suiface layer Livestock grazing should be managed to protect this soil from blowing and drifting sand.

The main imitation for construction of dwellings is the frequent ponding in areas of Playas. Buildings should be

ocated above the expected flood level.

If the Rusty soil is used for septic tank absorption fields, the limitation of moderately slow permeability can be overcome by increasing the size of the absorption field.

This unit is limited for roads because of the frequent ponding in areas of Playas. Roads and streets should be ocated above the expected flood level. Unless surface drainage is provided excess water accumulates and roads on the Rusty soil are damaged by frost heaving.

This map unit is in capability subclasses ills, irrigated, and VI s, non-riigated. The Rusty soil is in range site 27-

611—Sagouspe sandy loam. This very deep, somewhat poorly drained soil is in tilled stream channels and oxbows on flood plains. It formed in sandy alluvium derived from various kinds of rock. Slope is 0 to 2 percent. E evation is 4,300 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is light brown sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray sand and loamy sand and has strata of sandy loam to sit loam.

ncluded in this unit are about 5 percent Dia soils on stream terraces, 5 percent Dithod soils on flood plains, and 5 percent Ferniey soils in sand-filled channels included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Sagouspe soil is rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 0 to 3 5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated cultivated crops.

fith a unit is used for irrigated cultivated crops, rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprink er irrigation is the most suitable method of applying water. If furrow irrigation is used, water should be applied at short intervals and runs should be short. The rate of application of irrigation water should be

regulated to prevent a rise in the level of the water table. It is difficult to provide deep drainage of this soil because of its low position and the lack of suitable grade to an outlet.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Flooding can be controlled only by use of major flood control structures.

This map unit is in capability subclasses. If w, imgated, and VIw, noningated.

612—Sagouspe sandy loam, safine-alkall. This very deep, somewhat poorly drained soil is in filled stream channels and oxbows on flood plains. It formed in sandy altivium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees Fliand the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown to light brownish gray sand and loamy sand and has strata of sandy loam to silt loam.

included in this unit are about 10 percent Wabuska soils on low stream terraces and 5 percent Orizaba soils on low stream terraces and lake terraces, included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Sagouspe soil is rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkali-affected to a depth of 8 inches. The so is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for impated pasture

The concentration of saits and a kali in the surface ayer limits the production of plants suitable for hay and pasture. Leaching the saits from the surface ayer is limited by the high water table. Drainage and proper imigation water management reduce the concentration of saits. Salt-tolerant species are most suitable for planting. The rapid movement of water in the upper part of the soil should be considered when selecting the imigation method or design. Sprinkler imigation is the most suitable method of applying water imigation water must be carefully applied to avoid raising the water table and increasing the concentration of saits and alkali in the soil. It is difficult to provide deep drainage of this soil because of its low position and the lack of adequate grade to an outlet.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this

unit, Flooding can be controlled only by use of major flood control structures

This map unit is in capability subclasses tills, imgated, and VIIs, noningated.

613—Sagouspe loam, wet. This very deep, somewhat poorly drained soil is in depressional areas on flood plains. It formed in sandy a uvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4 300 to 4 800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray loam about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown to light brownish gray sand and loamy sand and has strate of sandy loam to set loam.

Included in this unit are about 10 percent Dia soils, wet, on low stream terraces (range sile 27-4) and 5 percent Dithod soils, wet, on low stream terraces (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage values from one area to another.

Permeability of this Sagouspe soil is rapid. Available water capacity is moderate. Effective rooting depth is mitted by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from March through June. Bunoff is very slow, and the hazard of water erosion is slight. The hazard of soil browing is slight. This soil is subject to occasional, long periods of flooding in April through June and it is subject to ponding as a result of impation runoff from higher lying areas.

This unit is used for livestock grazing and wildlife habitat. It can be used for irrigated crops if an adequate drainage system is installed.

The potential plant community on this unit is mainly rushes sedges, tulted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly rushes, rubber rabbitbrush sedges, and inland saltgrass. The production of forage is limited by the drop in the level of the water table ate in summer. The suitability of this unit for rangeland seeding is fair. The main limitations are the moderate available water capacity of the surface layer, wet soil conditions in spring, and dry soil conditions in fall. Plants that to erate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by vestock.

This unit is limited for roads because of occasional periods of flooding and the severe hazard of frost heaving. Flooding can be controlled only by use of major flood control structures. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses Illw imgated, and VI w, nonirrigated, It is in range site 27-4

621—Saralegui loamy sand, 0 to 4 percent slopes. This very deep, well drained sor is on ake terraces and affuvial fans. It formed in sandy alluvium over lacustrine sediment derived dominantly from granitic rock. E evation is 4,300 to 4,900 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown and brown loamy sand about 5 inches thick. The subsolis brown and yellowish brown sandy loam about 34 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown sand.

included in this unit are about 7 percent Wedertz soils intermingled throughout the unit (range site 26-16). 5 percent Wellington soils on alluvial fan remnants (range site 26-16), and 3 percent Obanion soils in depressional areas (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage values from one area to another.

Permeability of this Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

Most areas of this unit are used for imgated crops and livestock grazing. A few areas are used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush, and bottlebrush squirre tall. The present vegetation in most areas is mainly Wyoming big sagebrush. Anderson peachbrush, green ephedra, and bottlebrush squirreltail. The production of forage is timited by the low average annual precipitation and the moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main imitations are the low average annual precipitation and the texture of the surface layer. Seedbod preparation should be on the contour or across the stope where practical.

if this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are the hazard of soil blowing and moderate available water capacity. Soil blowing can be controlled by keeping the soil rough and cloddy when it is not protected by vegetation. Furrow, border, corrugation, and sprincer irrigation systems are suited to the unit. The method used generally is governed by the crop grown. For the efficient application and removal of irrigation water, taveling is needed in stoping areas.

This unit is well suited to the construction of dwellings. The main fimilation for septic tank absorption fields is poor filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

f surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses Ills, irrigated, and VIIs, non-ingated. It is in range site 26-16.

623—Saralegui loamy sand, 4 to 8 percent slopes. This very deep, we'll drained soil is on alkivial tans and ake terraces. It formed in alluvial and lacustime material derived dominantly from granitic rock. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 8 notes, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown and grayish brown loamy sand about 5 inches thick. The subsoil is brown and yellowish brown sandy loam about 34 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown loamy sand and sand.

ncluded in this unit are about 5 percent Hotsprings so s on a luvial lans (range site 26-16) and 5 percent Haybourne soils on the lower part of alluvial lans (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeablity of this Saralegui soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for irrigated crops and livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush. Anderson peachbrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for range and seeding is poor. The main limitations are the low average annual precipitation and the texture of the surface layer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for imgated hay, pasture, and cultivated crops, the main limitations are slope, moderate available water capacity, and the hazard of soil blowing Soil blowing can be controlled by keeping the soil rough and cloddy when it is not protected by vegetation. Sprinkler imgation is the most suitable method of applying water.

This unit is well suited to the construction of dwellings. The main imitation for septic tank absorption fields is the poor filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water

If surface drainage and a stable base are provided damage from frost heaving is minimized for roads on this unit

This map unit is in capability subclasses I le, in gated and Vills, noningated, it is in range site 26-16.

625—Saralegui sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on a luvial fans and take terraces. It formed in a luvial and tacustrine material derived dominantly from granitic rock. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy oam about 5 inches thick. The subsoil is brown and yellowish brown sandy loam about 27 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown loamy sand and sand.

Included in this unit are about 6 percent Wederiz so a on alluvial fans (range site 26-16) and 4 percent Wellington soils on alluvial fan remnants (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage values from one area to another

Permeability of this Saralegui soi is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Most areas of this unit are used for imgated crops and livestock grazing. A few areas are used for homes to development

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass. Wyoming big sagebrush, and bottlebrush squirrelta. The present vegetation in most areas is mainly Wyoming big sagebrush, Anderson peachbrush green ephedra, and bottlebrush squimeltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

If this unit is used for imgated hay pasture and cultivated crops, the main limitation is the moderate available water capacity. Furrow, border, corrugation and sprinkler strigation systems are suited to the unit. The method used generally is governed by the crop grown. For the efficient application and remova of imigation water, leveling is needed in sloping areas.

This unit is well suited to the construction of dweilings. The main limitation for septic tank absorption fields is the poor filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid poliuting ground water.

f surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses lifts, imgated, and VIIs, nonirrigated, it is in range site 26-16.

626—Saralegul toamy sand, undutating. This very deep, well drained soil is on old lake terraces. It formed in sandy alluvium over lacustine material derived dominantly from granitic rock. Slope is 2 to 8 percent Elevation is 4,600 to 5,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is grayish brown and brown loamy sand about 5 inches thick. The subsoil is brown and yellowish brown sandy loam about 27 inches thick. The substratum to a depth of 60 inches or more is brown and paie brown sand and loamy sand.

Included in this unit are about 6 percent Wedertz soils on a uvial fans (range site 26-16), 5 percent Wedeington so sign adjuvial fan remnants (range site 26-16), and 4 percent sait- and atkali-affected soils on lower terrace margins (range site 27-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of the Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Bunoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing, it can be used for irrigated crops if water for irrigation is made available

The potential plant community on this unit is mainly Thurber need egrass, indian neegrass. Wyoming big sagebrush, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush. Anderson peachbrush, green ephedra, and bottlebrush squirreltail. The production of forage is mitted by the low average annual precipitation and moderate available water capacity. The sustability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation and the texture of the surface, ayer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

f surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses Ills, irrigated, and VIIs honirrigated. It is in range site 26-16

627—Saralegui Variant loamy sand. This very deep, well drained socials on lake terraces and alluvial fans. It formed in sandy a luvium over stratified, moderately fine textured lacustrine sediment derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to

4,900 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown loamy sand about 4 inches thick. The subsurface layer is light gray sandy loam about 6 inches thick. The subsoil is yellowish brown or pale brown sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is stratified, light gray to yellowish brown sity clay loam to loamy sand.

Included in this unit are about 7 percent Wedertz soils intermingled throughout the unit (range site 26-16) 5 percent Wellington soils intermingled throughout the unit (range site 26-16), and 3 percent Obanion soils on toe slopes of alluvial fans (range site 27-4) Included areas make up about 15 percent of the total acreage. The percentage values from one area to another.

Permeability of this Saralegui Variant soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

Most areas of this unit are used for irrigated crops and livestock grazing. A few areas are used for homesite development

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass. Wyoming big sagebrush, and bottlebrush squirre tail. The present vegetation in most areas is mainly Wyoming big sagebrush, rubber rabbitbrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main mitations are the low average annual precipitation and the texture of the surface layer. Livestock grazing should be managed to protect this unit from biowing and drifting sand.

If this unit is used for irrigated hay pasture, and cultivated crops, the main limitation is the hazard of soil blowing. Soil blowing can be controlled by keeping the soil rough and cloddy when it is not protected by vegetation. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown.

This unit is well suited to the construction of dweings. The main limitation for septic tank absorption fields is the moderately slow permeability. Use of sandy backfor the trench and long absorption lines helps to compensate for this imitation.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses like, irrigated, and Vills, nonimigated. It is in range site 26-16.

631-Singatse very gravelly sandy loam, 8 to 15 percent stopes. This very shallow, somewhat excessively drained soil is on hillsides and mountains. It formed in residuum and collusium derived dominantly from andesite and granitic rock. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days

Typically, the surface layer is light brownish gray very praye v sandy loam about 6 inches thick. Weathered bedrock is at a depth of about 6 inches. Hard bedrock is at a depth of 12 inches. Depth to weathered bedrock. ranges from 4 to 10 inches. Depth to hard bedrock

ranges from 10 to 20 inches

Included in this unit are about 10 percent Theon soils on rounded he tops and stable side slopes (range site 27-19) 3 percent Malpais soils in drainageways and on associated alluvial fans (range site 27-18), and 2 percent Yerington soils on the leeward side of hills that receive deposits of sandy eolian material (range site 27-9) nouded areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Singatse soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches, Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife babitat

The potential plant community on this unit is mainly shadscale. Balley greasewood, and Indian ricegrass. The present vegetation in most areas is mainly Bailey greasewood, shadscale, bottlebrush squirreltail, and spiny hopsage. The production of lorage is limited by the ow average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity

This unit is limited for roads because of shallow depth to bedrock. Roads should be designed to minimize cuts.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-27

632—Singatse-Rock outcrop complex, 30 to 75 percent slopes. This map unit is on hills and mountains. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 70 percent Singatse very gravelly sandy loam. 30 to 75 percent slopes, and 15 percent Rock outcrop. The components of this unit are so intocately ntermingled that it was not practical to map them. separately at the scale used

Included in this unit are about 8 percent Theori soils on rounded hilltops and stable side slopes (range site 27 19), 5 percent Malpais soils in dra nageways (range site 27-18), and 2 percent Yerington soils on the seward side of hills that receive deposits of sandy editanmaterial (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Singatse soil is very shallow and somewhat excessively drained, it formed in residuum and colluvium derived dominantly from andesitic and granitic rock Typically, the surface layer is light brownish gray very gravelly sandy loam about 6 inches thick. Weathered bedrock is at a depth of 5 inches. Hard bedrock is at a depth of 12 inches. Depth to weathered bedrock ranges from 4 to 10 inches. Depth to hard bedrock ranges from 10 to 20 inches

Permeability of this Singatse soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of so blowing is slight.

Rock outcrop consists of exposures of andes tic or

granitic bedrock.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Singalse soil is shadscale, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly shadscale, bottlebrush squirreltail, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, the very low available water capacity, and slope

This unit is limited for roads because of the numerous areas of Rock outcree and the shallow depth to bedrock and slope of the Singatze soil. Roads should be designed to minimize cuts because of the depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stab .zing areas that have been disturbed.

This map unit is in capability subclass V is, nonimigated. The Singatse soil is in range site 27-27

633—Singatse-Theon association. This map unit is on hills and mountains. Slope is 30 to 75 percent. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average trost free penod is 100 to 120 days.

This unit is 50 percent Singatse very grave ly loam and 35 percent Theon very gravelly loam. The Singatse soil is on the less stable side slopes, and the Theorison is

on the more rounded, stable side slopes

Included in this unit are about 6 percent Rock outcrop on ridges, 5 percent Malpais soils in drainageways range site 27-18), and 4 percent Yenngton soils on the eeward side of hills that receive deposits of sandy eolian material (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Singatse soil is very shallow and somewhat excessively drained. It formed in residuum and colluvium derived dominantly from andesitic and granitic rock. Typically the surface layer is light brownish gray very gravely loam about 6 inches thick. Weathered bedrock is at a depth of 12 inches. Depth to weathered bedrock ranges from 4 to 10 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Singatse soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Theorison is shallow and very shallow and is well drained. It formed in residuum derived dominantly from voicanic rock. Typically, the surface layer is pale brown very gravely loam about 2 inches thick. The subsoil is dark brown very gravely loam and very gravelly clay loam about 9 inches thick. Soft, weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theori soil is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is a ght.

This unit is used for -ivestock grazing and wildlife habitat

The potential plant community on the Singatse soil is mainly shadscale. Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly shadscale bottlebrush squirreltail, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

The potential and present plant community on the Theor soil is mainly shadscale. Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

Slope lim to access by livestock and results in overgrazing of the less sloping areas. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe

decrease in productivity and in the potential of the unit to produce plants suitable for grazing

This unit is limited for roads because of slope and shallow depth to bedrock. Roads should be designed to minimize cuts because of the imited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Singatse soil is in capability subclass V is, nonirrigated, and in range site 27-27. The Theon soil is in capability subclass VIIe, nonirrigated, and in range site 27-19.

641—Tocan sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on a uvia fans and terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the

average frost-free period is 100 to 130 days

Typically, the surface layer is paie brown sandy cam about 6 inches thick. The subsoil averages sandy cray cam that is yellowish brown. It is about 9 inches thick. The substratum to a depth of 60 inches or more is paie brown, stratified sandy loam to very grave by loamy sand it is 30 to 50 percent silica and lime nodules in the upper part.

Included in this unit are about 9 percent Patha so is on eclian deposits (range site 27-9) and 6 percent Yerington soils on wind-worked alluvial fans and stabilized hummocks and low dunes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Tocan soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing it is a so used for impated crops

The potential plant community on this unit is mainly Bailey greasewood, shadscale, and indian ricegrass. The present vegetation in most areas is mainly shadscale. Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay pasture, and cultivated crops, the main limitation is the moderate available water capacity. Furrow, border corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. For the efficient application and removal of irrigation water, leveling is needed in sloping areas.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses ltc, imigated, and V -c, nonirrigated. It is in range site 27-18.

642—Tocan sandy loam, 2 to 4 percent slopes. This very deep well drained soil is on alluvial fans and terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically the surface layer is pale brown sandy loam about 6 inches thick. The subsoil is yellowish brown sandy clay loam about 9 inches thick. The substratum to a depth of 60 inches or more is stratified sandy loam to very gravelly sand, it is 30 to 50 percent silical and lime

nodules in the upper part

Included in this unit are about 9 percent Patha soils on eolian deposits (range site 27-9) and 6 percent Yerington soils on wind-worked alluviat fans and stabilized hummocks and low dunes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Tocan soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for impated crops.

The potential plant community on this unit is mainly Balley greasewood, shedscale, and Indian ricegrass. The present vegetation in most areas is mainly shadscale, but sagebrush, spiny hopsage, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are slope and the moderate available water capacity. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. Use of pipe, ditch liming, or drop structures in rigation ditches facilitates irrigation and reduces ditch erosion. For the efficient application and removal of irrigation water teveling is needed in sloping areas. Because of the limited depth to the substratum, cuts required for leveling should be tess than 6 inches deep.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses lie, impated, and Viic, rionimgated. It is in range site 27-18.

643—Tocan gravelly sandy loam, 4 to 8 percent slopes. This very deep, well drained soil is on alluvial tans and terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown grave y sandy loam about 6 inches thick. The subsoil is yellowish brown sandy clay loam about 9 inches thick. The substratum to a depth of 60 inches or more is stratified sandy loam to very gravelly sand. It is 30 to 50 percent.

silica and lime nodules in the upper part.

tholuded in this unit are about 9 percent Patha so is on eolian deposits (range site 27-9) and 6 percent Yerington soils on wind-worked allowal fans and stab ized hummooks and low dunes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Tocan soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil

blowing is slight.

This unit is used mainly for livestock grazing. It is a so

used for imgated crops

The potential plant community on this unit is mainly indian ricegrass, shadscale, and Bailey greasewood. The present vegetation in most areas is mainly shadscale. Bailey greasewood, spiny hopsage, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay pasture and cultivated crops, the main limitations are slope and the moderate available water capacity. Sprinkler irrigation is the most suitable method of applying water. Use of pipe, ditch liming, or-drop structures in irrigation ditches facilitates impation and reduces ditch erosion.

Roads can easily be constructed and maintained on

this unit

This map unit is in capability subclasses file, irrigated, and Vilc, nonimigated. It is in range site 27-18

644—Tocan-Yerington complex, 0 to 4 percent slopes. This map unit is on wind-worked as uvial fans and alluvial flats. Elevation is 4,200 to 5 000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average trost-free period is 100 to 130 days.

This unit is 50 percent Tocan sandy loam and 40 percent Yenngton loamy fine sand. The Tocan soil is on alluvial fans, and the Yenngton soil is on alluvial fans and alluvial flats. The components of this unit are so introducing intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Patha soils on eoiran deposits (range site 27-9). The percentage varies from one area to another

The Tocan soil is very deep and we'll drained. If formed in a luvium derived from various kinds of rock Typically, the surface layer is pale brown sandy loam about 8 nones thick. The subsoil is yettowish brown sandy day loam about 9 inches thick. The substratum to a depth of 60 inches or more is stratified sandy loam to very gravelly sand.

Permeability of the Tocan soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil

blowing is slight.

The Yerington soil is very deep and well drained. It formed in eclian deposits derived from various kinds of rock. Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is straified, pale brown carry sand and sandy loam.

Permeability of the Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 nones or more Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate

This unit is used mainly for livestock grazing. It is also

used for ringated crops

The potential plant community on the Tocan soil is mainly Bailey greasewood, Indian neegrass, and shadscale. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirre ta. The production of forage is limited by the low average annual prediction. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual predictation.

The potential plant community on the Yerington soil is mainly indian ricegrass, fourwing selfbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly low rabbilbrush, and an ricegrass, Bailey greasewood, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for impated hay, pasture, and cultivated crops, the main limitations are the moderate available water capacity, slope, and the rapid permeability of the Yenngton soil. Sponkler impation is the most suitable method of applying water. Use of pipe, ditch lining, or drop structures in impation ditches facilitates impation and reduces ditch erosion.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclass ite, impated and Vilc, nonimpated. The Tocan soil is in range site 27-18, and the Yenngton soil is in range site 27-9.

651—Theon very gravelly sandy loam, 8 to 30 percent slopes. This shallow and very shallow well drained soil is on hills and low mountains. It formed in residuum derived dominantly from andesite and rhyo te Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown very gravelry sandy loam about 2 inches thick. The subsocial brown and reddish brown very gravelly clay loam and very gravelly loam about 9 inches thick. Weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 knohes. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Included in this unit are about 5 percent Rock outcrop on ridges and steep side slopes, 5 percent Singatse soils on steep south-facing side slopes (range site 27-27), and 5 percent Olac soils on north-facing side slopes (range site 26-25). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Theorisoid is moderately slow Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soll blowing is slight.

This unit is used for livestock grazing.

The potential plant community on this unit is mainly shadscale, Indian ricegrass, desert needlegrass, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is mitted by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity.

This unit is limited for roads because of the shallow depth to bedrock and slope in some areas. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs. nonimigated, and in range site 27.19

652—Theon-Olac association. This map unit is on hills and low mountains. Slope is 30 to 75 percent. Elevation is 4,200 to 6,500 feet. The average annual

precipitation is about 6 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 40 percent Theon very gravelly loam, 30 to 50 percent slopes, 25 percent Theon very stony loam, 50 to 75 percent slopes, and 20 percent Olac very stony oam, 30 to 75 percent slopes. The Theon very gravelly loam is on the upper and lower mountainsides, the Theon very stony loam is on mid slopes of mountains, and the Olac soil is on north-facing side slopes.

included in this unit are about 5 percent Singatse soils on steep south-facing side slopes (range site 27-27), 5 percent Old Camp soils on concave, north-facing side slopes (range site 26-22), and 5 percent Rock outcrop on ridges and steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Theon very gravelly loarn is shallow and very shallow and is well drained it formed in residuum derived dominantly from andesite and rhyolife. Typically, the surface layer is pale brown very gravelly loam about 2 inches thick. The subsoil is brown and reddish brown very gravely dray dam about 9 inches thick. Weathered bedrock is at a depth of 15 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon very gravelly toam is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Theorivery story loam is shallow and very shallow and is well drained it formed in residuum derived dominantly from andesite and rhyolite. Typically, the surface layer is pale brown very story loam about 2 nones thick. The subsoil is brown and reddish brown very gravelly clay loam and very gravelly loam about 9 nones thick. Weathered bedrock is at a depth of 11 nones. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon very story loam is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Orac soil is very shallow and well drained. It formed in residuum derived dominantly from igneous rock. Typically, the surface layer is light brownish gray very story loam about 4 inches thick. The subsoil is brown extremely gravelly clay loam about 8 inches thick. Hard bedrock is at a depth of 12 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Ofac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to

14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil biowing is slight

This unit is used for livestock grazing and widlife habitat

The potential plant community on the Theor very gravelly loam is mainly galleta, Indian ricegrass desert needlegrass, and shadscale. The present vegetation in most areas is mainly shadscale. Bailey greasewood, and Indian neegrass. The production of forage is imited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope

The potential plant community on the Theorivery story loam is mainly desert needlegrass, indian ricegrass, and littleleaf horsebrush. The present vegetation in most areas is mainly shadscale. Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Orac soi is mainly low sagebrush. Thurber needlegrass, and bottlebrush squirreltait. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltait. The production of forage is imited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slope.

Slope limits access by livestock and results in overgrazing of the less sloping areas. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of shallow depth to bedrock and slope. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass V is, noningated. The Theon very grave ly loam is in range site 27-19, the Theon very stony loam is in range site 27-17, and the Olac soil is in range site 26-25.

653—Theor-Lapon-Olac association. This map unit is on hills and low mountains. Slope is 30 to 75 percent. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 45 percent Theon very gravelly loam, 30 to 75 percent slopes: 20 percent Lapon extremely slony loam 30 to 50 percent slopes: and 20 percent Olac very stony loam, 30 to 75 percent slopes. The Theon soil is on the sides of mountains and hills, the Lapon soil is on the upper side slopes and rounded tops of hills and mountains, and the Olac soil is on concave, north-facing side slopes.

Included in this unit are about 8 percent Singatse soils on steep, south-facing side slopes (range site 27-27), 4 percent Malpais soils in narrow drainageways (range site 27-18) and 3 percent Patha soils in pockets of wind-deposited sand (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Theor soil is shallow and very shallow and is well drained, it formed in residuum derived dominantly from igneous rock. Typically, the surface layer is pale brown very gravelly loam about 2 inches thick. The subsoil is brown and reddish brown very gravelly clay loam and very gravelly loam about 9 inches thick. Weathered bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theorisoil is moderately slow Aval able water capacity is very low. Effective rooting depth is 10 to 20 inches, Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil

blowing a slight

The Lapon so is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface rayer is light brownish gray extremely stony loam about 6 inches thick. The subsoil is brown very gravelly dray loam about 8 inches thick. The next layer is a hardpan that is demented with silica and me and is about 26 inches thick. Hard bedrock is at a depth of 40 inches. Depth to the demented hardpan ranges from 8 to 14 inches. Depth to hard bedrock ranges from 15 to 40 inches.

Permeability of the Lapon soil is slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The O ac soi is very shallow and well drained. It formed in residuum derived dominantly from igneous rock. Typically, the surface layer is light brownish gray very stony loam about 4 inches thick. The subsoil is brown extremely gravely clay loam about 8 inches thick. Hard bedrock is at a depth of 12 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wild ife habitat

The potential plant community on the Theor soil is mainly shadscale, Bailey greasewood, desert needlegrass, and galleta. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian neegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

The potential plant community on the Lapon soil is mainly pine bluegrass. Thurber needlegrass, and low sagebrush. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangerand seeding is very poor. The main limitations are the very low available water capacity and slope.

The potential plant community on the Olac soil is mainly low sagebrush. Thurber needlegrass, and bottlebrush squimeltail. The present vegetation in most areas is mainly low sagebrush and bottlebrush squimeltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slope.

Slope limits access by livestock and results in overgrazing of the less sloping areas. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of shallow depth to bedrock, shallow depth to a hardpan, and slope. Roads should be designed to minimize cuts because of the limited depth to bedrock or hardpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Theon soil is in capability subclass VI e, noningated, and in range site 27-19. The Lapon soil is in capability subclass VII.e, noningated, and in range site 27-20. The Olac soil is in capability subclass VII.s. noningated, and in range site 26-25.

654—Theon-Rock outcrop-Old Camp complex, 50 to 75 percent slopes. This map unit is on hills and mountains. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 40 percent Theon very stony loam, 50 to 75 percent slopes: 30 percent Rock outcrop; and 16 percent Old Camp very stony loam, 50 to 75 percent slopes. The Theori soil is on hidisides and mountainsides, the Old Camp soil is on north-facing side slopes, and the Rock outcrop is mainly on ridges and in extremely steep areas. The components of this unit are so introducing intermingled that it was not practical to map them separately at the scale used.

ncluded in this unit are about 5 percent Singatse sois on very steep, south-facing side slopes (range site 27-27), 5 percent Olac soils on north-facing, convex side slopes (range site 26-25) and 5 percent Rubble land, mostly below the areas of Rock outcrop. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Theorisor is shallow and very shallow and is well drained. It formed in residuum derived dominantly from andes te and rhyolite. Typically, the surface layer is pale brown very stony loam about 2 inches thick. The subsoil is brown and reddish brown very gravelly loam and very gravelly clay loam about 9 inches thick. Weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon soil is moderately slow.

Ava. able water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of bedrock.

The Old Camp soi is shallow and we'll drained, it formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brown shigray very stony loam about 4 inches thick. The subsoil is pale brown very cobbly day loam about 10 inches thick, time-coated hard andesite is at a depth of 14 inches. Depth to andesite ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Build is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wid to habitat

The potential plant community on the Theorisoil is mainly desert needlegrass, indian neegrass, and littleleaf horsebrush. The present vegetation in most areas is mainly shadscale. Bailey greasewood, and desert need egress. The production of forage is limited by the ow average annual precipitation. The suitability of this so, for range and seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

The potential plant community on the Old Camp soil is mainly desert needlegrass. Thurber needlegrass, and Wyoming big sagebrush. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slope.

Slope limits access by livestock and results in overgrazing of the less sloping areas. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of the numerous areas of Rock outcrop, sharlow depth to bedrock, slope, and stones. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained stones and cobbles create road hazards and increase maintenance costs.

The Theorisoil is an capability subclass VIIs, nonringated, and in range site 27-17. The Old Camp soil is in capability subclass VIIe, nonirrigated, and in range site 26.22.

655—Theon-Yerington association. This map unit is on low foothills and associated alluvial fans. Slope is 4 to 15 percent, Elevation is 4,300 to 5,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F and the average frost-free period is 100 to 130 days.

This unit is 60 percent Theon gravelly loamy fine sand, 8 to 15 percent slopes, and 25 percent Yenngton gravelly loamy fine sand, 4 to 8 percent slopes. The Theon soil is on low hills, and the Yerington soil is on wind-worked alluvial fans.

Included in this unit are about 10 percent Patna soils on the leeward side of hills (range site 27-9) and 5 percent Malpais soils in drainageways (range site 27-16) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Theon soil is shallow and very shallow and is well drained. It formed in residuum derived dominantly from igneous rock and is overlain by sandy materia. Typically, the surface layer is pale brown gravelly loamy fine sand about 10 inches thick. The subsoil is reddish brown very gravelly clay loam about 4 inches thick. Weathered bedrock is at a depth of 14 inches. Depth to weathered

bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theonisoil is moderately slow Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is sight.

The Yerington soil is very deep and well drained. It formed in wind worked all avium derived from various is not of rock. Typically, the surface fayer is pale brown gravelly loamy tine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy fine sand and sandy loam and has as much as 15 percent gravel.

Permeablity of the Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wild fe habitat and homesite development.

The potential plant community on the Theorisoil is mainly lind an ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Indian neegrass. Douglas rabbitbrush, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The potential prant community on the Yerington soil is mainly Indian ricegrass, fourwing saltbush, need eandthread, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, dates, and Doug as rabbitbrush. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the moderate available water capacity of the surface layer.

The main limitation for construction of dwellings on the Theon soil is shallow depth to bedrock. Heavy equipment is needed for excavation. The Yerington soil is well suited to the construction of dwellings.

The main limitation of the Theon soil for septic tank absorption fields is shallow depth to bedrock. Absorption fields should be designed to compensate for this limitation. The main limitation of the Yerington soil for septic tank absorption fields is inadequate filtration. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

The Theon sor is limited for roads because of shallow depth to bedrock. Deep cuts should be avoided. Roads can easily be constructed and maintained on the Yerington soil.

This map unit is in capability subclass V1s, noningated, and in range site 27-9

661—Isolde fine sand, 0 to 15 percent slopes. This very deep, excessively drained soil is on dunes and the leeward side of hills. It formed in edian arkosic sand derived from various kinds of rock. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost free period is 100 to 120 days.

Typically, the surface layer is pale brown fine sand about 7 inches thick. The underlying material to a depth of 60 inches or more is pale brown sand.

included in this unit are about 10 percent Patha so is in areas between dunes and hummocks (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Isolde soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Bunoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wild te habitat

The potential plant community on this unit is mainly hairy horsebrush, fourwing saltbush, need eardthread, and Indian ricegrass. The present vegetation in most areas is mainly hairy horsebrush, fourwing saltbush, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Roads generally can easily be constructed and maintained on this unit. During prolonged dry periods, however, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VI s, noningated, and in range site 27 23

662—Isolde-Patha complex, 0 to 15 percent slopes. This map unit is on sand dunes and ake plains. Elevation is 4,000 to 5,000 feet. The average annua precipitation is about 5 inches, the average annua air temperature is about 50 degrees F and the average frost-free period is 100 to 120 days.

This unit is 50 percent Isolde fine sand, 0 to 15 percent slopes, and 40 percent Patria fine sand, 4 to 15 percent slopes. The Isolde soil is on stabilized dunes, and the Patria soil is on lake plains. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Hough soils in stable interdune areas (range site 27-18) and 5 percent Rusty soils in low-lying interdune areas (range site 27-9), included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Isoide so: is very deep and excessively drained, it formed in eo an sand derived from various kinds of rock Typically, the surface layer is pale brown fine sand about 7 inches thick. The underlying material to a depth of 60 nones or more is pale brown fine sand.

Permeability of the Isolde soil is very rapid. Available water capacity is low Effective rooting depth is 60 nones or more Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Patha so is very deep and somewhat excessively drained. It formed in eo an sand derived from various kinds of rock. Typically, the surface tayer is light brownish gray fine sand about 5 inches thick. The subsoil is ye owish brown and brown fine sandy foam about 10 inches thick. The substratum to a depth of 60 inches or more is brown loamy fine sand and fine sand.

Permeability of the Patha soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Isolde soil is mainly heiry horsebrush, needleandthread, fourwing saltbrush, and Indian ricegrass. The present vegetation in most areas is mainly hairy horsebrush, dalea, fourwing saltbush and indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main imitations are the low average annual precipitation and the texture of the surface layer.

The potential plant community on the Patha soil is mainly indian ricegrass fourwing saltbush, and needleandthread. The present vegetation in most areas is mainly the an ricegrass, littleleaf horsebrush, and Balley greasewood. The production of forage is limited by the tow average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the texture of the surface layer.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

Roads generally can easily be constructed and maintained on this unit. Gutting and filling are reduced by building roads in the less sloping areas. When the soils are dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs. noningated. The Isolde soil is in range site 27-23, and the Patna soil is in range site 27-9.

663—Isolde fine sand, slightly saline-alkali, 2 to 15 percent slopes. This very deep, excessively drained soil is on stabilized dunes overlying lake terraces. It formed in echan sand derived from various kinds of rock. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is paie brown fine sand about 6 inches thick. The underlying materia to a depth of 60 inches or more is pale brown fine sand.

Included in this unit are about 10 percent Rusty soils in areas between dunes and hummocks (range site 27-9) and 5 percent Playas in depressional blowout areas. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Isoide soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high. The soil is slightly salt- and aikali- affected throughout the profile.

This unit is used mainly for livestock grazing. It is also used for wild fe habitat

The potential plant community on this unit is mainly brack greasewood, hairy horsebrush, Indian ricegrass and needleandthread. The present vegetation in most areas is mainly black greasewood, hairy horsebrush, dalea, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the slightly saline and a kali condition of the surface layer and the texture. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. During prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs nonirrigated, and in range site 27-16.

671—Toulon gravelly loam, 0 to 4 percent slopes. This very deep, excessively drained soil is on shore neterraces and bars. It formed in waterworn grave and sand derived from various kinds of rock. Elevation is 4,200 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

Typically, the surface is covered with a pavement of smooth, subangular to well rounded pebbles and cobbles as much as 4 inches in diameter. The surface layer is ight brown shigray gravelly loam about 5 inches thick. The subsoil is paid yellow very gravelly foam about 8 inches thick. It has strong brown and yellowish red iron oxide mottles. The substratum to a depth of 60 inches or more is light gray and pink shiwhite extremely gravelly coarse sand.

Included in this unit are about 5 percent Yerington solls on deposits of edian sand (range site 27.9) and 5 percent Bluewing soils on alluvial fans (range site 27-18) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Toulon soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 nones or more, Ruhoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly as a source of sand and gravel. It is also used for livestock grazing.

The potential plant community on this unit is mainty Indian ricegrass. Balley greasewood, shadscale and bottlebrush squarettail. The present vegetation in most areas is mainly Balley greasewood, shadscale, and bud sagebrush. Much of the surface is barren or supports very sparse vegetation. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitation is the low average annual precipitation.

Unless an adequate wearing surface is maintained, stones and cobbles in the sol create road hazards and norease maintenance cost.

This map unit is in capability subclass VIIs, noninigated, and in range site 27-18

681—Yerington Variant loam, 2 to 4 percent slopes. This very deep, well drained soil is on windformed ridges. It formed in solian material derived from various kinds of rock. Elevation is 4,400 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is pale brown loam about 4 inches thick. The underlying material to a depth of 60 inches or more is pale brown loam and clay loam.

nctuded in this unit is about 10 percent Orizaba soils along the lower fringe of the unit (range site 26-12).

Permeability of this Yerington Variant soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is moderately salt- and alkall affected.

This unit is used for fivestock grazing and wildlife habitat

The potential plant community on this unit is mainly black greasewood, Indian ricegrass, shadscale, and Bailey greasewood. The present vegetation in most areas is mainly black greasewood fourwing satibush, and seepweed. The production of forage is smited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the low so, strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs nonirrigated, and in range site 27-24

691—Ultra gravelty fine sandy loam. This very deep well drained soil is on the margins of remnant take terraces and playas. It formed in a uvium derived from various kinds of rock overlying fine lacustrine sediments. Slope is 0 to 2 percent. Elevation is 4,150 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees. Fland the average frost-free period is 100 to 130 days.

Typically, the surface layer is light gray grave y fine sandy loam about 2 inches thick. The subsoil is light brown clay about 9 inches thick. The substratum to a depth of 60 inches or more is stratified, pale brown and light brownish gray sity clay loam to sity clay.

included in this unit is about 10 percent Lahontan soils on lake plains (range site 27-15)

Permeability of this Ultra soil is very slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is strongly salt- and alkain-affected in the subsoil and substratum.

This unit is used mainly for livestock grazing and wildlife habitat, it is also used for homesite development

The potential plant community on this unit is mainly Bailey greasewood, shadscare Indian ricegrass, and bottlebrush squirreitail. The present vegetation in most areas is mainly Bailey greasewood, shadscare, and bottlebrush squirreitail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor The main limitation is the low average annual precipitation.

The main limitation for construction of dwellings is the content of highly expansive clay in the soil if buildings are constructed on the unit, properly designing foundations and footings and diverting runoff away from buildings help to prevent structural damage because of shrinking and swelling

The main limitation for septic tank absorption fields is the very slow permeability. Use of sandy backfor for the trench and long absorption fields helps to compensate for this imitation.

This unit is limited for roads because of low soil strength and the content of highly expansive clay. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18

701—Veta very gravelly sandy loam, 2 to 8 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 6 inches thick. The subsoil is pale brown extremely gravelly loam about 12 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and light gray very gravelly sandy loam and extremely gravelly coarse sandy loam.

Included in this unit are about 7 percent Hunewill soils on alluvial fan remnants (range site 26-16), 5 percent Saralegui soils on old lake plains (range site 26-16), and 3 percent sandy soils on stabilized hummocks (range site 26-14). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Veta soil is moderately rapid.

Available water capacity is low. Effective rooting depth is 60 nches or more Runoff is slow and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Most areas of this unit are used for livestock grazing and wild fe habitat. A few areas are used for homesite development.

The potential plant community on this unit is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, and spiny hopsage. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very graveily texture of the surface layer.

The presence of stones and cobbies interferes with the preparation of building sites on this unit. The presence of stones may hamper excavation for absorption lines.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Unless an adequate wearing surface is maintained, stones and cobbies in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, noningated, and in range site 26-24

702—Veta very gravelly sandy loam, occasionally flooded, 2 to 4 percent slopes. This very deep, we'll drained soil is on aBuvial fans and low stream terraces. It formed in aLuvium derived from various kinds of rock. Elevation is 4,300 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 6 inches thick. The subsor is pale brown very gravelly loam about 12 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and light gray very gravelly sandy loam and very gravelly coarse sandy loam.

Included in this unit are about 7 percent Hunewill soils on alluvial fan remnants (range site 28-16), 5 percent Saralegus soils on old lake plains (range site 26-16), and 3 percent sandy soils on stabilized hummocks (range site 26-14). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Veta soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, very brief periods of flooding from February through unity.

Most areas of this unit are used for livestock grazing and wildlife habitat. A few areas are used for homesite development.

The potential plant community on this unit is mainly basin wildrye, basin big sagebrush, anterope bitterbrush, and wheatgrass. The present vegetation in most areas is mainly basin big sagebrush, green ephedra, spiny hopsage bottlebrush squarettail, and anterope bitterbrush. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for range and seeding is very poor. The main limitation is the very gravelly texture of the surface layer.

The main limitation for construction of dweilings is the hazard of flooding. Buildings should be located above the expected flood level.

The main limitation for septic tank absorpt on fields is the hazard of flooding.

This unit is limited for roads because of the hazard of flooding. Flooding can be controlled only by use of major flood control structures.

This map unit is in capability subclass VIIs. nonimicated, and in range site 26-34.

704—Veta very cobbly sandy loam, 8 to 15 percent slopes. This very deep, well drained soil is on alluvial tans. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 6,000 feet. The average annual precipitation is about 8 inches, the average.

annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very cobbly sandy loam about 6 inches thick. The subsoil is pale brown very gravelly loam about 12 inches thick. The substratum to a depth of 60 inches or more is light brown shighay and light gray extremely gravelly sandy loam and very gravely coarse sandy loam.

Included in this unit are about 7 percent Hunewill soils on alluviar fan remnants (range site 26-16) and 3 percent sandy soils on stabilized hummocks (range site 27-23), included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Veta soil is moderately rapid.

Avai able water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Most areas of this unit are used for livestock grazing and wild fe habitat. A few areas are used for homesite development.

The potential plant community on this unit is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, spiny hopsage, and bottlebrush squirreltail. The production of forage is mited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the cobbies on the surface of the soil, which interfere with use of mechanical equipment and the movement of livestock.

Strongly sloping areas are a concern for design and construction of dwe lings on this unit. The presence of stones and cobb es interferes with the preparation of building sites.

Slope is a concern in installing septic tank absorption fields. Absorption lines should be installed on the contour. The presence of stones may hamper excavation for absorption. nes.

Cutting and hing are reduced by building roads in the ess sloping areas of the unit. Roads should be provided with adequate surface drainage, a stable base, and an adequate wearing surface. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-24.

711—Vylach-Weena association. This map unit is on dissected terraces and pediments. Elevation is 4,300 to 5.500 feet. Slope is 2 to 30 percent. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Vylach gravelly sandy loam, 2 to 8 percent slopes, and 35 percent Weena loam, 15 to 30 percent slopes. The Vylach soil is on pediments that have a thin covering of all Jylium, and the Weena soil is on dissected side slopes of terraces and pediments.

Included in this unit are about 8 percent Cleaver soils on old alluvial fan remnants (range site 27-18), 4 percent Patha soils on the leeward sides of hills and gullies (range site 27-9), and 3 percent Maipais soils in drainageways (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Vylach soil is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light gray gravelly sandy loam about 5 inches thick. The subsoil is brown sandy clay loam about 7 inches thick. The next layer is a hardpan that is strongly cemented with silica and lime and is about 15 inches thick. Weakly conso dated sandstone or siltstone is at a depth of 27 inches. Depth to the hardpan ranges from 9 to 17 inches. Depth to bedrock ranges from 20 to 30 inches.

Permeability of this Vylach soil is moderately slow Available water capacity is very low. Effective rooting depth is 9 to 17 inches. Renoff is medium, and the hazard of water erosion is slight. The hazard of solblowing is sight.

The Weena soil is very shallow and well drained. It formed in residuum derived dominantly from sandstone and sitistone. Typically, the surface layer is grayish brown and light brownish gray loam about 7 inches thick it is about 70 percent soft slitistone pebbles. Soft weathered slitistone is at a depth of 7 inches. Unweathered siltstone is at a depth of 17 inches. Depth to weathered bedrock ranges from 4 to 14 inches.

Permeability of this Weena soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 14 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is a ght

This unit is used mainly for livestock grazing. A few areas of the Vylach soil are used for homesite development.

The potential plant community on the Vytach soil is mainly Indian ricegrass, shadscale. Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and bottlebrush squirreltail. The potential plant community on the Weena soil is mainly Indian ricegrass, Bailey greasewood, shadscale, and winterfat. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bottlebrush squirre tail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity.

The main limitations for construction of dwellings are the restricted depth to the hardpan in the Vylach soil and the steepness of slope of the Weena soil. The hardpan can be ripped with power equipment

The main limitation of the Vylach soil for septic tank absorption fields is the restricted depth to the hardpan and bedrock. Absorption fields should be designed to compensate for this limitation. The main limitations of the Weena soil for septic tank absorption fields are the restricted depth to bedrock and slope. Effluent from absorption fields can surface in downslope areas and

thus create a hazard to health.

The Vylach soil is limited for roads because of the hardpan. The hardpan can be ripped with power equipment. The Weena soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs. nonirrigated. The Vylach soil is in range site 27-18, and

the Weena soil is in range site 27-26

721—Wabuska loamy sand. This very deep, somewhat poorly drained soil is on alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent, Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface eyer is light gray loamy sand about 9 notes thick. The underlying material to a depth of 60 nones or more is stratified silt loam, sandy loam,

loamy sand, and loam

ncluded in this unit are about 8 percent Wabuska soils in sightly higher areas (range site 27-5), 5 percent Fallon soils on low stream terraces (range site 27-2), and 2 percent Sagouspe soils in sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage values from one area to another.

Permeability of this Wabuska soil is moderate. Available water capacity is moderate. Effective rooting depth is imited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. The soil is sightly salt- and alkar-affected to a depth of 9 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for imgated cultivated crops and pasture. It is also used for homesite development.

and livestock grazing

The potential plant community on this unit is mainly besin wildrye, inland saftgrass, alkan sacaton, and black

greasewood. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and in and saltgrass. The production of forage is mitted by the low average annual precipitation and the drop in the level of the water table late in summer. The suitability of this unit for rangeland seeding is poor. The main imitations are wetness of the soil in spring and droughtness ate in summer and in fall. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the seasona high water table and the rapid movement of water in the upper part of the soil. This rapid movement of water should be considered when selecting the irrigation method or design. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water.

The main limitation for construction of dwe lings is the hazard of flooding. Flooding can be controlled only by

use of major flood control structures

The main limitation for septic tank absorption fields is the seasonal high water table. Drainage or special design is needed.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses I w, irrigated, and Viw, nonlingated. It is in range site 27-6.

722—Wabuska toam. This very deep, somewhat poorly drained soil is on alluvia, flats: It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

Typically, the surface layer is pale brown toam about 9 inches thick. The underlying material to a depth of 60 inches or more is stratified loam, silt loam, sandy loam.

and loamy sand

Included in this unit are about 7 percent strongly saine Wabuska soils in sightly higher lying areas (range site 27-5), 5 percent Falion soils on low stream terraces (range site 27-2), and 3 percent Sagouspe soils in sand-filled stream channels (range site 27-2) included areas make up about 15 percent of the total acreage. The percentage values from one area to another

Permeability of this Wabuska soil is moderate Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July. Runoif is very slow, and the hazard of water erosion is slight. The hazard of soil browing is slight. This soil is slightly sait- and alkail-affected to a depth of 9 inches. This soil a subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for impated cultivated crops and pasture. It is also used for homesite development.

and ivestock grazing

The potential plant community on this unit is mainly basin wildrye inland saltgrass, alkali sacaton, and black greasewood. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and inland saltgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table ate in summer. The suitability of this unit for range and seeding is poor. The main limitations are wetness of the soil in spring and drought ness late in summer and in tall. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand tramping by livestock

This unit is well suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the seasonal high water table. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. Deeprooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. The content of saits and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water

The main limitation for construction of dwellings is the hazard of flooding. Flooding can be controlled only by

use of major flood control structures

The main limitation for septic tank absorption fields is the seasonal high water table. Drainage or special design is needed

This unit is mited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses liw, angaled,

and V w, nonirrigated. It is in range site 27-6.

723—Wabuska loam, moderately saline-alkall. This very deep, somewhat poorly drained soil is on alluvial flats, it formed in a livial deposits derived from various kinds of rock. Slope is 0 to 2 percent. Flevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 nahes, the average annual air temperature is about 50 degrees F and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown loam 9 nches thick. The underlying material to a depth of 60 nches or more is stratified toam, sitt loam, sandy loam, and loamy sand.

This map unit is in capability subclasses II w, imgated, and VIw, nonsingated, It is in range site 27.6

724---Wabuska loam, strongly saline-alkali. This very deep, somewhat poorly drained soil is on alluvia-

Included in this unit are about 8 percent strongly saltand alkali-affected Wabuska soils in slightly higher areas. (range site 27.5), 5 percent Fallon soils on low stream terraces (range site 27-2), and 2 percent Sagouspe soils in sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage The percentage varies from one area to another.

Permeability of this Wabuska soil is moderate Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July Runoff is very slow, and the hazard of water arosion is slight The hazard of soil blowing is shight. This soil is moderately sait- and arkali-affected to a depth of 9 riches. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and pasture. It is also used for homesite development

and Investock grazing

The potential plant community on this unit is mainly basin wildrye, Inland saltgrass, alka sacaton, and black greasewood. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and in and saltgrass. The production of forage is limited by the low average annual precipitation, the drop in the level of the water table late in summer and in fall, and the content of salts and alkali in the surface layer. The suitability of this unit for rangeland seeding is very poor. The main limitations are wetness in spring, droughtiness are in summer and in fall, and the content of salts and a.ka. in The soil

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the seasona high water table and the moderate content of salts and a ka-Furrow, border, corrugation, and sprink er inigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of imgation water should be regulated to prevent a rise in the level of the water table. The content of salts and alkali can be reduced by using soamendments such as gypsum, by leaching, and by carefully applying irrigation water

The main limitation for construction of dwellings is the hazard of flooding. Flooding can be controlled only by

use of major flood control structures.

The main limitation for septic tank absorption fields is the seasonal high water table. Drainage or special design is needed

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

flats it formed in alluvial deposits derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is pale brown loam 9 inches thick. The underlying material to a depth of 60 inches or more is stratified silt loam, loam, sandy loam, and sand.

included in this unit are about 10 percent Orizaba soils in shatlow depressional areas (range site 27-5) and 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Wabuska soil is moderate. Available water capacity is moderate. Effective rooting depth is mitted by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is strongly sait- and alkali-affected to a depth of 9 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated pasture, it is also used for homesite development and livestock grazing.

The potential plant community on this unit is mainly alkali sacaton, in and saltgrass, basin wildrye, and black greasewood. The present vegetation in most areas is mainly black greasewood, inland saltgrass, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation, the content of salts and a kali in the soil, and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is very poor. The main mitations are the low average annual precipitation and the content of salts and alkali in the soil.

This unit is poorly suited to irrigated hay and pasture. The main imitations are the seasonal high water table and the content of salts and alkali. Furrow, border, corrugation and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. Salt tolerant grasses can be grown. The rate of application of irrigation water should be regulated to prevent a rise in the tevel of the water table. The content of salts and alkalican be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water.

The main limitation for construction of dwellings is the hazard of flooding. Flooding can be controlled only by use of major flood control structures.

The main imitation for septic tank absorption fields is the seasona high water table. Drainage or special design is needed. This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses V w, irrigated, and VIIw, nonringated. It is in range site 27-5.

725—Wabuska-Delp-Playas complex, 0 to 15 percent slopes. This map unit is on alluvial flats Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Wabuska loam, moderately saline-alkali, 30 percent Delp sand; and 10 percent Playas. The Wabuska soll is on nearly lever alluvial flats, the Delp soil is on dunes and hummocks of alluvial flats, and the Playas are in shallow depressional areas. The components of this unit are so intricately interming ed that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Orizaba soils in shailow depressional areas (range site 27-5) and 5 percent Parran soils in low-lying areas (range site 27-25) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Wabuska soil is very deep and somewhat poorly drained. It formed in altuvial deposits derived from various kinds of rock. Slope is 0 to 2 percent. Typically the surface layer is pale brown loam about 9 nones thick. The underlying material to a depth of 60 nones or more is stratified silt loam, loam, sandy loam, and sand

Permeability of this Wabuska soil is moderate. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkali-affected to a depth of 9 inches. The soil is subject to flooding during prolonged, high intensity storms. Channeling and deposition are common along streambanks.

The Delp soil is very deep and well drained, it formed in epilan sand derived from granitic rock. Slope is 2 to 15 percent. Typically, the surface layer is light gray sand about 5 inches thick. The subsoil is pare brown, stratified sandy loam and loamy sand about 14 inches thick. The substratum to a depth of 60 inches or more is stratified sand to loamy fine sand.

Permeability of this Delp soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

Playas consists of barren, nearly level areas that are somewhat lower lying than surrounding areas. The surface layer is moderately fine textured or fine textured.

Areas of Playas are subject to frequent, brief to long periods of ponding after heavy rains.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Wabuska soil is mainly alkar sacaton, mand sa tgrass, basin wildrye, and black greasewood. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and inland sa tgrass. The production of forage is limited by the low average annual precipitation, the drop in the level of the water table late in summer and in fall, and the content of salts and a kall in the soil. The suitability of this soil for range and seeding is very poor. The main limitations are the low average annual precipitation and the content of salts and alkal in the soil. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

The potential plant community on the Delp soil is mainly indian ricegrass, black greasewood hairy horsebrush and need eandthread. The present vegetation in most areas is mainly black greasewood, hairy horsebrush, spiny horsebrush, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rengeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy.

texture of the surface layer

The Wabuska soil is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. Cutting and filling are reduced by building roads in the less stoping areas of the Delp soil. When the Delp soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIw, non-rigated. The Wabuska soil is in range site 27-6, and

the Delp so is in range site 27-16.

731—Hunewill sandy loam, 4 to 8 percent slopes. This very deep, we'll drained soil is on alluvial fans. It formed in a luvium derived from various kinds of rock Elevation is 4,500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically the surface layer is light brownish gray sandy loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravely clay loam, and the lower 5 inches is very gravelly sandy loam. The substratum to a depth of 60 inches or more is grayish brown extremely cobbly loamy sand with some layers of extremely

gravelly sand

ncluded in this unit are about 8 percent Stucky soils on the upper part of convex alluvial fans (range site 26-47) and 7 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the

total acreage. The percentage varies from one area to another.

Permeability of this Hunewill soil is moderately slow Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development

and imgated crops

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low available water capacity and the low average annual precipitation.

This unit is suited to irrigated hay pasture, and cultivated crops, it is limited mainly by stope and the tow available water capacity. Sprinkler irrigation can be used but water needs to be applied slowly to minimize runoff if furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

The presence of stones and cobbies interferes with the preparation of building sites on this unit.

The main limitation for septic tank absorption fields is the rapid movement of water through the substratum. Because the substratum is rapidly permeable, special design may be needed to avoid poliuting ground water

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclasses life irrigated, and Vic. noningated. It is in range site 26-16

732—Hunewill stony loam, 8 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. I formed in alluvium derived from various kinds of rock Elevation is 4 500 to 7 000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically, the surface layer is light brownish gray stony loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravelly clay loam, and the lower 5 inches is very gravelly sandy loam. The substratum to a depth of 60 inches or more is grayish brown extremely gravelly sand with some layers of extremely cobbly sand.

Included in this unit are about 10 percent Stucky soils on the upper part of convex alluvial fans (range site 26-47) and 5 percent Veta soils in drainageways (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Hunewill soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wild if a habitat, it is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass. Wyoming big sagebrush, Indian ricegrass, and bothebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is poor. The main imitations are the low available water capacity and the low average annual precipitation.

Strongly sloping areas are a concern for design and construction of dwellings on this unit. The presence of stones and cobbles interferes with the preparation of building sites.

The main mitation for septic tank absorption fields is the rapid movement of water through the substratum. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIs and in range site 26-16.

733—Hunewill stony loam, 15 to 30 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock Elevation is 4 500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically, the surface layer is light brownish gray stony loam about 3 inches thick. The upper 10 inches of the subsoil is brown very grave by clay loam, and the lower 5 inches is very grave by sandy loam. The substratum to a depth of 60 inches or more is grayish brown extremely gravelly sand with some layers of extremely cobbly loamy sand.

ncluded in this unit are about 10 percent Stucky soils on the upper part of convex altuvial fans (range site 26-47) and 5 percent Veta soils in drainageways (range site

26-14). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hunewill soil is moderately slow Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of so, blowing is sight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, indian ricegrass, and bothebrush squirreltal. The present vegetation in most areas is mainly Wyoming big sagebrush, bothebrush squirreltail, and indian neegrass. The production of forage is limited by the low average annual precipitation and the low averable water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low available water capacity and the low average annual precipitation.

Steepness of stope is a concern for design and construction of dwellings on this unit

The main limitations for septic tank absorption fields are slope and the rapid movement of water through the substratum. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIs and in range site 26-16

734—Hunewill very gravelly sandy foam, 2 to 8 percent slopes. This very deep, were drained soil is on a uvial fans. It formed in all uvium derived from various kinds of rock. Elevation is 4,500 to 7,000 feet. The average annual precipitation is about 9 inches the average annual air temperature is about 49 degrees F, and the average frost-free penod is 90 to 120 days.

Typically, the surface rayer is light brownish gray very gravelly sandy loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravelly c ay roam and the lower 5 inches is brown very gravely sandy loam. The substratum to a depth of 60 inches or more is grayish brown extremely gravelly sand with some layers of extremely cobbly loamy sand.

Included in this unit are about 8 percent Stucky soils on the upper part of convex allowal fans (range site 26-47) and 7 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hunewill soil is moderately slow Available water capacity is low. Effective rooting depth is 60 notes or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is sight.

This unit is used mainly for livestock grazing and wild fe habitat. It is also used for irrigated crops and

homes te development

The potential plant community on this unit is mainly Thurbet need egrass. Wyoming big sagebrush, Indian ricegrass, and bott ebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very gravelty texture of the surface layer.

This unit is poorly suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by slope, the very gravely texture of the surface layer, and the low available water capacity. Sprinkler irrigation can be used but water needs to be applied slowly to minimize runoff if Juriow or corrugation irrigation systems are used, runs should be on the contour or across the slope. To avoid overirigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the cropineeds.

The presence of stones and cobbies interferes with the preparation of building sites on this unit.

The main mitation for septic tank absorption fields is the rapid movement of water through the substratum. Secause the substratum is rapidly permeable, special design may be needed to avoid polluting ground water

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclasses IVs, irrigated, and VI s, nonirrigated. It is in range site 26-16

735—Hunewill very gravelly sandy loam, 6 to 15 percent alopes. This very deep, well drained soil is on a uvia fans. It formed in a uvium derived from various kinds of rock. Elevation is 4,500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically the surface layer is light brownish gray very gravely sandy loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravelly clay loam, and the lower 5 inches is very gravelly sandy loam. The substratum to a depth of 60 inches or more is grayish brown sand and gravel with some layers of extremely cobbly loamy sand.

Included in this unit are about 10 percent Stucky soils on the upper part of convex a uvia, fans (range site 26-

47) and 5 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hunewin soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development and irrigated crops

The potential plant community on this unit is mainly Thurber needlegrass. Wyoming big sagebrush, Indian neegrass, and bothebrush squirreitail. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreitail and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very grave by texture of the surface layer.

This unit is poorly suited to irrigated hay pasture, and cultivated crops. It is limited mainly by slope, the very gravelly texture of the surface layer, and the low available water capacity. Sprinkler irrigation can be used but water needs to be applied slowly to minimize runoff. Use of this method permits the even controlled application of water, reduces runoff, and minimizes the risk of erosion. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

Steepness of slope is a concern for design and construction of dwellings on this unit. The presence of stones and cobbles interferes with the preparation of building sites.

The main limitation for septic tank absorption fields is the rapid movement of water through the substratum. Because the substratum is rapidly permeable apecia design may be needed to avoid polluting ground water

Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized. Unless an adequate wearing surface is maintained, stones and cobbies in the soil create road hazards and increase maintenance cost.

This map unit is in capability subcrasses. Vs, irrigated and Vils, nonirrigated. It is in range site 26-16.

741—Wedertz-Wellington-Sarategut complex, 0 to 2 percent slopes. This map unit is on alluvial fans and lake terraces. Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F and the average frost-free period is 100 to 120 days.

This unit is 40 percent Wedertz coarse sandy loam, 30 percent We lington coarse sandy loam, and 20 percent Sara egui sandy loam. The Wedertz soil is on the lower ying ake terraces, the Wellington soil is on the higher lying ake terraces, and the Saralegui soil is on inset a luvial fans. The components of this unit are so intricately interming ed that it was not practical to map them separately at the scale used.

included in this unit is about 10 percent sandy soils on stabilized dunes and hummocks (range site 27-23).

The Wedertz soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock overlying lacustrine material. Typically, the surface layer is brown and light gray coarse sandy loam about 9 niches thick. The substratum to a depth of 60 inches or more is light gray and white loam that is weakly and continuously cemented with silica and lime.

Permeability of the Wedertz soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil

blowing is slight.

The Weilington soll is shallow and well drained. It formed in alluvial and acustrine sediment derived from various kinds of rock. Typically, the surface layer is grayish brown coarse sandy loam about 4 inches thick. The subsoll is brown and pale brown sandy clay loam about 11 inches thick. The upper 11 inches of the substratum is a hardpan that is cemented with since and time, and the lower part to a depth of 60 inches or more is light brownish gray very fine sandy loam. Depth to the hardpan ranges from 12 to 20 inches.

Permeability of the Wellington soil is moderately slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is slow, and the hazard

of water erosion is slight

The Saralegur soil is very deep and well drained. If formed in wind-worked alluvial and lacustrine material derived from various kinds of rock. Typically, the surface layer is brown and grayish brown sandy loam about 5 inches thick. The subsoil is brown and yellowish brown sandy oam about 27 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown oamy sand and sand.

Permeability of the Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil

blowing is slight.

This unit is used for irrigated crops and livestock

grazing

The potential plant community on this unit is mainly Thurber need egrass, Wyoming big sagebrush, and Indian neegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the low

average annual precipitation, the moderate available capacity of the Wedertz and Saralegui soils and the very low available water capacity of the Wellington soil. The sustability of the Wedertz and Saralegui soils for rangetand seeding is poor. The main limitation is the low average annual precipitation. The sustability of the Wellington soil is very poor. The main limitation is the very low available water capacity. Seeding of large areas of the more favorable Wedertz and Saralegui soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable Wellington soils.

This unit is suited to imgated hay, pasture, and cultivated crops. It is limited mainly by the moderate available water capacity of the Wedertz and Sarategui soils and the very low available water capacity of the Wellington soil. Furrow, border, corrugation, and sprinkler imgation systems are suited to the unit. The method used generally is governed by the crop grown. To avoid overimigating and leaching of plant nutrients, applications of imigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

If surface drainage and a stable base are provided for roads on the Wedertz and Saralegu sors, damage from frost heaving is minimized. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface Roads should be designed to min mize cuts because of the limited depth to the underlying hardpan in the Wellington so.

This map unit is in capability subclasses I c. (riigated, and Vic, normigated. It is in range site 26-16.)

742—Wedertz-Wellington coarse sandy loams, 2 to 4 percent slopes. This map unit is on oid lake terraces Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F and the average frost-free period is 100 to 120 days.

This unit is 50 percent Wedertz coarse sandy oam and 40 percent Wellington coarse sandy loam. The components of this unit are so intricately interming ed that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Saralegusoils (range site 26-16) and 5 percent sandy sons on stabilized dunes and hummocks (range site 27-23) Included areas make up about 10 percent of the total acreage. The percentage values from one area to another.

The Wedertz soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock overlying lacustrine sediment. Typically, the surface layer is brown and light gray coarse sandy loam about 9 inches thick. The subsoil is brown sandy c ay ioam about 19 inches thick. The substratum to a depth of 60 inches or more is light gray and white loam and is weakly and continuously cemented with silica and line.

Permeability of the Wedertz soft is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soft blowing is slight.

The We ington soil is shallow and well drained. It formed in a luvial and acustine sediment derived from various kinds of rock. Typically, the surface layer is grayish brown coarse sandy loam about 4 inches thick. The subsoil is brown and pale brown sandy clay loam about 11 inches thick. The upper 11 inches of the substratum is a hardpain that is demented with silica and me, and the lower part to a depth of 60 inches or more is light brownish gray very line sandy loam. Depth to the hardpain ranges from 12 to 20 inches.

Permeability of the Wellington soil is moderately slow Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for irrigated crops and livestock grazing

The optential plant community on this unit is mainly. Thurber needlegrass, Wyoming big sagebrush, and ndian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush sou treitail. The production of forage is limited by the low average annual precipitation, the moderate available water capacity of the Wedertz soil, and the very low available water capacity of the Wellington soil. The suitability of the Wedertz son for rangeland seeding is poor. The main limitation is the low average annual precipitation. The suitability of the Weilington soil for range and seeding is very poor. The main limitation is the very ow available water capacity. Seeding of large areas. of the more favorable Wedertz soils in this unit is difficult because of the pattern in which they occur with areas of the ess favorable Wellington soils

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the moderate avaliable water capacity of the Wedertz soil, the very low available water capacity of the Wellington soil, and slope. Furrow border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

if surface drainage and a stable base are provided for roads on the Wedertz soil, damage from frost heaving is min mized. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. Roads on the Wellington soil should be designed to minimize cuts because of the limited depth to the underlying hardpan.

This map unit is in capability subclasses lie, imgated, and Vic, noningated. It is in range site 26-16.

743—Wedertz-Weilington coarse sandy toams, 4 to 8 percent slopes. This map unit is on oid take terraces Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average trost-free penod is 100 to 120 days

This unit is 50 percent Wedertz coarse sandy loam and 40 percent Weilington coarse sandy loam. The Wedertz soil is in the slightly lower areas, and the Wellington soil is in the sughtly higher areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale user!

Included in this unit are about 5 percent Sararegul soils (range site 26-16) and 5 percent sandy soils on stabilized dunes and hummocks (range site 26-14) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Wedertz soil is very deep and weil drained. It tormed in allovial and acoustine material derived dominantly from granitic rock. Typically, the surface layer averages coarse sandy loam that is brown and light gray It is about 9 inches thick. The subsoil is brown sandy clay loam about 19 inches thick. The substratum to a depth of 60 inches or more averages loam that is light gray and white and is weakly and continuously cemented with silical and lime.

Permeability of the Wedertz soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Wellington soil is shallow and well drained, it formed in alluvial and lacustrine sediment derived from various kinds of rock. Typically, the surface layer averages coarse sandy loam that is grayish brown. It is about 4 inches thick. The subsoil is brown and pale brown sandy clay loam about 11 inches thick. The upper 11 inches of the substratum is a hardpan that is cemented with silica and time, and the lower part to a depth of 60 inches or more is light brownish gray very fine sandy loam. Depth to the hardpan ranges from 12 to 20 inches

Permeability of the Wellington sor is moderately slow Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of sol blowing is slight.

This unit is used for imgated crops and livestock grazing.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, the moderate available water capacity of the Wedertz soil, and the very low available water capacity of the Wellington soil. The suitability of the Wedertz soil for rangeland seeding is poor. The main limitation is the low average annual precipitation. The suitability of this Wellington soil for range and seeding is very poor. The main limitation is the very low available water capacity. Seeding of large areas of the more favorable Wedertz soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the moderate available water capacity of the Wedertz soil, the very low available water capacity of the Wellington soil, and slope. Sprinker irrigation is the most suitable method of applying water. If furrow or corrugation irrigation systems are used runs should be on the contour or across the slope. The method used generally is governed by the crop grown. To avoid overingating and leaching of plant nutrients applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

If surface drainage and a stable base are provided for roads on the Wedertz soil damage from frost heaving is minimized. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. Roads should be designed to minimize cuts because of the similar depth to the underlying hardpan in the Wellington so:

This map unit is in capability subclasses life, irrigated, and Vici nonirrigated. It is in range site 26-16.

744—Wedertz-Saralegui-Weilington complex, 8 to 15 percent slopes. This map unit is on high take terraces and alluvial fans. Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 40 percent Wedertz coarse sandy loam, 30 percent Saralegul sandy loam, and 20 percent Wellington coarse sandy loam. The Wedertz soil is on the slightly lower lake terraces, the Saralegul soil is on alluvial fans, and the Wellington soil is on the slightly higher lake terraces. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent sandy soils on stabilized dunes and hummocks (range site 27-23)

The Wedertz soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock over acustrine material. Typically, the surface layer is brown and light gray coarse sandy loam about 9 inches thick. The subsoil is brown sandy clay loam about 19 inches thick. The substratum to a depth of 60 inches or

more is light gray and white foam and is weakly and continuously cemented with silica and lime

Permeability of the Wedertz soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 mches or more. Burioff is medium, and the hazard of water erosion is slight. The hazard of so blowing is slight.

The Saralegui soil is very deep and well drained. It formed in wind worked at uvial and accistons material derived dominantly from granitic rock. Typically, the surface layer is brown and grayish brown sandy loam about 4 inches thick. The subsoil is brown and yellowish brown sandy loam about 32 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown loamy sand and sand.

Permeability of the Saralegui soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Weilington soil is shallow and wall drained, it formed in alluvia; and lacustrine sediment derived from various kinds of rock. Typically the surface layer is grayish brown coarse sandy loam about 4 inches thick. The subsoil is brown and pale brown sandy clay loam about 11 inches thick. The next layer is a hardpan that is cemented with silica and time and is about 11 inches thick. The substratum to a depth of 60 inches or more is light brownish gray very fine sandy loam. Depth to the hardpan ranges from 12 to 20 inches

Permeability of the Weilington soil is moderately slow Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of so blowing is slight.

This unit is used for livestock grazing and wild fe habitat

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is mited by the low average annual precipitation, the moderate available water capacity of the Wedertz and Sara egui so is and the very low available water capacity of the Weington soil. The suitability of the Wedertz and Sara egui so is for rangeland seeding is poor. The main tim lation is the low average annual precipitation. The suitability of the Wellington soil for rangeland seeding is very poor. The main limitation is the very low available water capacity Seeding of large areas of the more favorable Wedertz and Saralegui soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable Wellington soils

If surface drainage and a stable base are provided for roads on the Wedertz and Saralegui soils, damage from frost heaving is minimized. Trafficability of roads can be

improved by providing a stable base and an adequate wearing surface. Roads on the Wedington soil should be designed to min mize cuts because of the limited depth to the underlying harpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass Vtc, non-mouted, and in range site 26-16.

746—Weltsed-Wedlar association. This map unit is on oid alluvial fans. Slope is 2 to 8 percent. Flevation is 6 000 to 6 400 feet. The average annual precipitation is about 9 nches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 50 percent We sed gravelly fine sand, 2 to 8 percent slopes, and 40 percent Wedlar loamy sand, 2 to 4 percent slopes. The Wellsed soil is in plane and convex areas, and the Wedlar soil is in slightly concave areas and in shallow swales.

no uded in this unit are about 5 percent Veta soils in drainageways (range site 26-24) and about 5 percent Ravenell so sion low rounded sediment remnants (range site 27-49). Included areas make up about 10 percent of the total acreage. The percentage values from one area to another

The Wei sed soil is moderately deep and well drained the formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is pale brown gravelly the sand about 6 noties thick. The subsoil is yellowish brown gravelly sandy clay loam about 9 inches thick. The upper 20 noties of the substratum averages gravelly damy sand that is pale brown, the next 15 inches is a hardpan that is demented with spical and time, and the ower part to a depth of 60 inches or more is stratified damy sand and sandy loam. Depth to the hardpan ranges from 20 to 40 inches.

Permeability of this Wellsed soil is moderately slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

The Wed at soil is very deep and well drained, it formed in alluvium derived dominantly from granitic rock. Typically the surface layer is grayish brown loamy sand about 6 nones thick. The upper 8 inches of the subsoil is pare brown dam, and the lower 23 inches is yellowish brown sandy clay and sandy clay loam. The substratum to a depth of 60 inches or more is pale brown gravelry sandy loam.

Permeability of this Wedlar soil is slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is sight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Wellsed soil is mainly Wyoming big sagebrush, galleta, Indian incegrass,

and spiny hopsage. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and spiny hopsage. The production of forage is I mited by the low average annual precipitation and very low available water capacity. The suitability of this sor for rangeland seeding is very poor. The main I mitation is the very low available water capacity.

The potential plant community on the Wedlar soil is mainly Wyoming big sagebrush, galieta, Indian ricegrass, and spiny hopsage. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and spiny hopsage. The production of forage is imited by the low average annual precipitation and moderate available water capacity. The suitability of this solifor rangeland seeding is very poor. The main imitation is the very low available water capacity of the surface layer.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If surface drainage and a stable base are provided for roads on the Wellsed soil, damage from frost heaving is minimized. Deep cuts in the Wellsed soil should be avoided because of the limited depth to the underlying hardpan. The Wedlar soil is limited for roads because of the low strength resulting from the content of highly expansive clay. When building roads on this unit, construction and maintenance cost can be reduced if areas of the clayey. Wed ar soil are avoided.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-35.

751—Malpais gravelly loamy sand, 2 to 8 percent slopes. This very deep, well drained soil is on ailuvia fans and along drainageways. It formed in a luvium derived dominantly from mixed rock. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average trost-free period is 100 to 120 days.

Typically, the surface layer is light brown shigray gravetly loamy sand about 3 inches thick. The subsoland substratum to a depth of 60 inches or more are pale brown and brown and average very gravely sandy loam, and extremely cobbly sandy loam.

Included in this unit are about 5 percent Perazzo soils on older alluvial fan remnants (range site 27-18) and 5 percent Yerington soils in areas of eolian deposits (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Malpais soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife

The potential plant community on this unit is mainly redian ricegrass, shadscale, bottlebrush squirreftail, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, Iridian ricegrass, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Unless an adequate wearing surface is maintained for roads on this unit, stones and coobtes in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

753—Malpals cobbly sandy toam, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans and along drainageways. It formed in alluvium derived dominantly from mixed igneous rock. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 notes, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is pale brown cobbly sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly sandy loam and extremely cobbly sandy loam.

nouded in this unit are about 5 percent Perazzo soils on alluvial fan remnants (range site 27-16) and 5 percent Yerington soils in areas of eolian deposits (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Malpais soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for ilvestock grazing and wildlife habitat

The potential plant community on this unit is mainly not an ricegrass, shadscale, bottlebrush squirreltail, and Bailey greasewood. The present vegetation in most areas is mainly shadscale. Bailey greasewood, Indian troegrass, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitation is the low average annual precipitation.

Unless an adequate wearing surface is maintained for roads on this unit, stones and cobbles at the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIIs, nonringated, and in range site 27:18

754—Malpais complex, 2 to 15 percent slopes. This map unit is on recent alluvial lans. Elevation is 4,300 to

4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Malpais gravelly sandy loam, 2 to 8 percent stopes, and 30 percent Malpais stony sandy loam, 4 to 15 percent stopes. The components of this unit are so intocately interming ed that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Perazzo soils on alluvial fan remnants (range site 27-18) and 5 percent Yenngton soils in areas of eolian deposits (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Malpais gravelry sandy loam is very deep and we drained. It formed in alluvium derived dominantly from mixed igneous rock. Typically, the surface eyer is paie brown gravelly sandy loam about 3 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly sandy loam and extremely coobly sandy loam.

Permeability of the Malpais gravelly sandy dam is moderately rapid. Available water capacity is low Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Malpais stony sandy loam is very deep and we drained. It formed in alluvium derived dominantly from mixed igneous rock. Typically, the surface layer is pale brown stony sandy loam about 3 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly sandy loam and extremely cobbly sandy loam.

Permeability of the Malpais stony sandy loam is moderately rapid. Available water capacity is low Effective rooting depth is 60 inches or more. Runoff a medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wild fe habitat

The potential plant community on this unit is mainly Indian ricegrass, shadscale, both ebrush squirreltan, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, indian ricegrass, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs. nonimicated, and in range site 27 18

755—Malpais-Yerington complex, 4 to 8 percent slopes. This map unit is on alluvial fans and on low dunes and sand sheets. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Maipais gravelly loamy sand and 30 percent Yerington loamy fine sand. The Maipais soil is on alluvial tans, and the Yerington soil is on stabilized low dunes and hummocks. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Perazzo soils on a luvial fan remnants (range site 27 18) and 5 percent Patha soils on older equan deposits (range site 27 9), included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Malpais sor is very deep and well drained. It formed in a uvium derived from various kinds of rock. Typically the surface layer is light brownish gray gravelly pamy sand about 3 inches thick. The underlying material to a depth of 60 inches or more is brown very gravely sandy loam and extremely cobbly sandy loam.

Permeability of the Malpais soil is moderately rapid Ava, able water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is

The Yerington so: is very deep and well drained. It formed in wind-worked alluvial and accustrine sed ment derived dominantly from mixed sandy material. Typically, the surface layer is pale brown loamy fine sand about 8 nones thick. The underlying material to a depth of 60 nones or more is pale brown, stratified loamy sand and sandy loam.

Permeability of the Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Malpais soil is mainly Indian ricegrass, shadscale, bottlebrush squirre tail, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood Indian neegrass, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potentral plant community on the Yerington soil is mainly indian ricegrass, fourwing saltbush, needleandthread, and Balley greasewood. The present vegetation in most areas is mainly low rabbitbrush, and an neegrass, Balley greasewood, and spiny hopsage.

The production of forage is irmited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Livestock grazing should be managed to protect this

unit from blowing and drifting sand

Because of the underlying very cobbly materia, in the Malpais soil, deep cuts should be avoided. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. Roads can easily be constructed and maintained on the Yerington soil.

This map unit is in capability subclass VIIs, nonkingated. The Malpais soil is in range site 27-18, and the Yerington soil is in range site 27-9.

761—Yerington loamy fine sand, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in wind-worked sandy alluvial and lacustrine sediment derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying materia to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam.

Included in this unit are about 8 percent Patna soils on alluvial fans and lerraces (range site 27-9). 5 percent Tocan soils on low terraces (range site 27-24) and 2 percent Malpais soils in drainageways and on associated alluvial fans (range site 27-8). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for Irvestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian neegrass, fourwing saltbush, needleandthread and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbilbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand

If this unit is used for impated hay, pasture, and cultivated crops, the main limitations are rapid permeability and moderate available water capacity. Because of the rapid permeability, sprinkler impation is best suited to this unit. Because the soil is droughty,

applications of irrigation water should be light and frequent. If furrow irrigation is used, water should be applied at frequent intervals and runs should be short. Soil blowing can be reduced by returning crop residue to the soil and practicing minimum tillage.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is inadequate filtration of efficient. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subcrasses fls, imgated, and Vt.s, nonirrigated. It is in range site 27-9

762—Yerington loamy fine sand, 2 to 4 percent slopes. This very deep, well drained soit is on alluvial fans. It formed in wind-worked sandy alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches. The average annual air temperature is about 50 degrees. Fi, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown loamy fine sand about 8 nones thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand to sandy loam.

Included in this unit are about 8 percent Patha soils on alluvial fans and terraces (range site 27-9), 5 percent Tocan soils on low terraces (range site 27-24), and 2 percent Maipais soils in drainageways and on associated alluvial fans (range site 27-18). Included areas make up about 16 percent of the total acreage. The percentage varies from one area to another

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 nches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian neegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian neegrass, Bailey greasewood, and dalea. The production of forage is imited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for impated hay, pasture, and cultivated crops, the main limitations are rapid permeability moderate available water capacity, and slope. Because of the slope, soil depth, and rapid permeability sprinkler prigation is best suited to this unit. If furrow or corrugation impation systems are used, runs should be on the contour or across the slope. Because the soil is droughty, applications of imigation water.

should be light and frequent. Use of pipe, ditch lining, or drop structures in irrigation ditches fact tates irrigation and reduces ditch erosion. Soil blowing can be reduced by returning crop residue to the soil and practicing minimum tillage.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields a inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses lis, irrigated, and Vils, nonvirgated, it is in range site 27-9

763—Yerington loamy fine sand, 4 to 8 percent stopes. This very deep, well drained soil is on alluvial lans. It formed in wind-worked a luvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown barry fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam.

Included in this unit are about 8 percent Patna soils on allowal fans and terraces (range site 27-9). 5 percent Tocan soils on low terraces (range site 27-24) and 2 percent Malpais soils in drainageways and on associated allowal fans (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing. It is a so used for impated crops and homesite development.

The potential plant community on this unit is mainly indian ricegrass, fourwing saltbush needleandthread and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

If this unit is used for imgated hay, pasture, and cultivated crops, the main limitations are rapid permeability, moderate available water capacity, and slope. Because of the slope, soil depth, and rapid permeability, sprinkler imgation is best suited to this unit. Because the soil is droughty applications of imgation water should be light and frequent. Use of pipe, ditch

lining, or drop structures in irrigation ditches facilitates rigation and reduces ditch erosion. Soil blowing can be reduced by returning crop residue to the soil and practicing minimum triage.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is nadequate filtration of effluent. Because the substratum is rapidly permeable special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses Ills, imgated, and VI s, noningated, it is in range site 27-9

764—Yerington loamy fine sand, 8 to 15 percent slopes. This very deep, well drained soit is on alluvial fans. It formed in wind-worked sandy alluvium derived from various kinds of rock. E evation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 80 inches or more is pale brown, stratified loamy sand and sandy loam.

Included in this unit are about 10 percent Isolde soils on low stabilized dunes and hummocks (range site 27-23) and 5 percent Patna so s on the lower end of a luvial fans (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Bunoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing, it is also used for homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian neegrass, Balley greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Steepness of slope is a concern for design and construction of dwellings on this unit

The main imitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Cutting and filling are reduced by building roads in the ess sloping areas of the unit.

This map unit is an capability subclass VI s, nonlinigated, and in range site 27-9

765—Yerington gravelty sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluviarians. It formed in alluvium derived from various kinds of rock and eolian sand. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees. Fland the average frost-free period is 100 to 120 days.

Typically, the surface layer is paie brown grave y sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is paie brown, stratified loamy sand and sandy loam and has enses of gravelly material.

Included in this unit are about 8 percent Malpais soils in drainageways (range site 27-18) and 7 percent iso de soils on stabilized dunes and hummooks (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Hunoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian neegrass, fourwing salibush needleandthread and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay pasture, and cultivated crops, the main limitation is the moderate available water capacity. The moderately rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprinkler irrigation is the most suitable method of applying water. Because the soil is droughty, applications of irrigation water should be light and frequent. If furrow irrigation is used, water should be applied at frequent intervals and runs should be short.

This unit is well suited to the construction of dweilings. The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratumis rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses I s, irrigated and VIIs, nonirrigated. It is in range site 27.9.

766—Yerington gravelly sandy loam, 2 to 4 percent stopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock and eo an sand. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

Typically, the surface layer is pale brown gravelly sandy oam about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified oamy sand and sandy loam and has lenses of gravelly materia.

ncluded in this unit are about 8 percent Malpais soils in drainageways (range site 27-18) and 7 percent Isolde so sion stablized dunes and hummocks (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for migated crops and homesite development.

The potential plant community on this unit is mainly notian recegnass fourwing saltbush, needleandthread, and Balley greasewood. The present vegetation in most areas is mainly Dougras rabbitbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and outivated crops, the main limitation is the moderate available water capacity. The moderately rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprink er irrigation is the most suitable method of applying water. Because the soil is droughty, applications of irrigation water should be light and frequent. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion.

This unit is well-suited to the construction of dwellings. The main limitation for septic tank absorption fields is inadequate hitration of efficient. Because the substratum is rapidly permeable, special design may be needed to avoid poliuting ground water.

Roads can easily be constructed and maintained on this unit

This map unit is in capability subclasses ile, imgated, and V is inonimigated, it is in range site 27-9.

767—Yerington gravelly sandy loam, 4 to 8 percent slopes. This very deep, well drained soil is on a livia tans. It formed in adultium derived from various kinds of rock and epilan sand. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown gravelly sandy loarn about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown stratified loamy sand and sandy loarn and has lenses of gravely or cobbly material.

Included in this unit are about 10 percent Isoide soils on stabilized dunes and hummocks (range site 27-23) and 5 percent Malpais soils in drainageways (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Hunoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for elvestock grazing. It is a so used for irrigated crops and homesite development.

The potential pant community on this unit is mainly Indian ricegrass, fourwing satibush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian ricegrass Bakey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are the moderate available water capacity and slope. The moderatery rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprinkler irrigation is the most suitable method of applying water. Because the soil is droughty applications of irrigation water should be light and frequent use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion.

This unit is well suited to the construction of dwe lings. The main limitation for septic tank absorption fields is inadequate filtration of efficient. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses I te, imgated, and VIIs, nonirrigated. It is in range site 27-9

771—Biddleman association. This map unit is on high lake terraces and old alluvial fans. Slope is 0 to 15 percent. Elevation is 4,200 to 4,400 feet. The average annual precipitation is about 5 inches, the average

annua, air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days

This unit is 60 percent Biddleman gravelly sandy loam, 0 to 8 percent slopes, and 25 percent Biddleman very stony sandy loam, 4 to 15 percent slopes. The Biddleman gravelly sandy loam is on the mid slopes and toe slopes of fans, and the Biddleman very stony sandy loam is on the upper part of fans and in streaks extending into middle areas of fans.

Included in this unit are about 10 percent Bluewing soils on a uvial fans (range site 27-18) and 5 percent Bango soils on toe slopes of alluvial fans (range site 27-18) Included areas make up about 15 percent of the tota acreage. The percentage varies from one area to another.

The Biddleman gravelly sandy roam is very deep and well drained. It formed in a juvium over shoreline pebbles derived from various kinds of rock. Typically, the surface ayer is light brownish gray gravelly sandy loam about 3 nones thick. The subsoil is yellowish brown and brown gravelly loam about 6 inches thick. The substratum to a depth of 60 inches or more averages extremely gravelly sand that is paid brown.

Parmeability of this Biddieman soil is moderately slow Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is slow or medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected to a depth of 8 inches.

The Biddleman very stony sandy loam is very deep and well drained. It formed in alluvium over shoreline pebbles derived from various kinds of rock. Typically, the surface layer is light brownish gray very stony sandy loam about 3 inches thick. The subsoil is pale brown gravelly dray loam and gravelly loam about 6 inches thick. The substratum to a depth of 60 inches or more averages extremely gravelly sand that is light gray.

Permeability of this Biddieman soil is moderately slow Avaluable water capacity is very low. Effective rooting depth is 60 inches or more. Bunoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkaliaffected to a depth of 9 inches.

This unit is used mainly for livestock grazing. It is also used as a source of sand and gravel and for homesite development.

The potential plant community on this unit is mainly Indian ricegrass shadscale, bud sagebrush, and Bailey greasewood. The present vegetation in most areas is mainly Bailey greasewood, shadscale, Indian ricegrass, and bud sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitations are the low average annual precipitation, the very low available water capacity, and the slightly saline and a kar surface layer.

The Biddleman gravelly sandy loam is well suited to the construction of dwellings. Strongly sloping areas are a concern for design and construction of dwellings on the Biddleman very stony sandy loam.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on the Biddleman gravelly sandy foam. Cutting and fing are reduced by building roads in the less sloping areas of the Biddleman very stony sandy foam or in areas of the Biddleman gravelly sandy foam.

This map unit is in capability subclass V s, nonimigated, and in range site 27-18

781—Celeton very cobbly sandy loam, 8 to 30 percent slopes. This very shallow, somewhat excessively drained soil is on dissected side slopes of hills. It formed in residuum derived dominantly from diatomaceous earth. Elevation is 4,400 to 5,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 52 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray very cobbly sandy loam about 2 inches thick. The underlying material is white sandy loam about 7 inches thick. Diatomaceous earth is at a depth of 9 inches. Depth to soft bedrock ranges from 4 to 14 inches.

Included in this unit are about 10 percent Malpais solis in drainageways and on short alluvial fans (range site 27-18) and 5 percent areas of Badland that consist of diatomaceous earth and are on ridges and steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

Permeability of this Celeton soil is rapid. Available water capacity is very low. Effective rooting depth is 4 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat

The potential plant community on this unit is mainly Bailey greasewood, shadscale, Indian ricegrass, and desert needlegrass. The present vegetation in most areas is mainly Bailey greasewood shadscale, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of fivestock. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is imited for roads because of steepness of sign in some areas. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass Vils, nonirrigated, and in range site 27-26.

782—Weena-Malpals association. This map unit is on eroded hi Isides and on associated a uvial tans and drainageways. Slope is 4 to 50 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Weena silt loam, 15 to 50 percent slopes, and 30 percent Malpais cobbly sandy oam, 4 to 15 percent slopes. The Weena soil is on side slopes of dissected lakebeds, and the Malpais soil is on inset alluvial fans and in drainageways.

included in this unit are about 5 percent areas of exposed sandstone and sittstone and 5 percent areas of Badland on steep eroded side slopes of soft lake deposits. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Weena soil is very shallow and well drained. It formed in residuum derived dominantly from sedimentary rock. Typically the Weena soil averages light brownish gray silt dem about 7 inches deep over weathered sandstone and siltstone. Weathered, soft bedrock is at a depth of 7 inches. Depth to bedrock ranges from 4 to 14 inches.

Permeability of this Weena soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 14 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Malpais soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically the surface layer is pale brown cobbly sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is very gravely sandy loam to extremely cobbly sandy loam.

Permeability of this Malpais soil is moderately rapid.

Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is siight. The hazard of soil blowing is sight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat

The potential plant community on the Weena soil is mainly indian neegrass. Bailey greasewood, shadscale, and desert needlegrass. The present vegetation in most areas is mainly Balley greasewood, shadscale, and indian ricegrass. The production of forage is limited by

the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and steepness of slope in some areas.

Soil Survey

The potential plant community on the Malpais soil is mainly indian ricegrass, shadscale, Balley greasewood, and bottlebrush squirreltail. The present vegetation in most areas is mainly shadscale. Bailey greasewood and Indian ricegrass. The production of forage is mitted by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas of the Maipa's soil Loss of the surface layer results in a severe decrease in productivity and in the potential of the Weena soil to produce plants suitable for grazing.

This unit is limited for roads because of steepness of slope in some areas and stones and cobbles on the Malpais soil. Cutting and filling are reduced by building roads in the tess sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs. nonimgated. The Weena soli is in range site 27-28 and the Malpais soil is in range site 27-18.

791—Flex-Duce association. This map unit is on mountains. Slope is 15 to 50 percent. E evation is 5,400 to 7,100 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 85 to 105 days.

This unit is 45 percent Flex gravelly loam and 35 percent Duco extremely stony loam. The Flex so is on south-facing side slopes and on ridges, and the Duco soil is on north-facing side slopes.

Included in this unit are about 5 percent very gravely shallow soils on very steep, south-facing side slopes (range site 26-15), 5 percent Hunewill soils on fans and lower lying side slopes (range site 26-16), and 10 percent areas of Rock outcrop on higgs and in very steep areas, included areas make up about 20 percent of the total acreage. The percentage varies from one area to another

The Flex soil is shallow and very shallow and is well drained. It formed in residuum derived dominantly from weathered metavolcanic and tuffaceous rock. Typically, the surface layer is grayish brown gravelly doam about 4 inches thick. The subsoil is strong brown and reddish

brown very gravelly sandy clay loam about 8 inches thick. Soft weathered metavolcanic rock is at a depth of 12 inches. Depth to soft weathered bedrock ranges from 6 to 12 inches.

Permeability of the Flex soli is moderate. Available water capacity is very low. Effective rooting depth is 6 to 12 nones. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Duco soil is shallow and well drained. If formed mandesite in Typica y, the surface layer is grayish brown extremely story loam about 4 inches thick. The subsoil is brown and pale brown very cobbly sandy clay loam about 15 inches thick. Hard andesite is at a depth of 19 niches. Depth to hard bedrock ranges from 10 to 20 niches.

Permeability of the Duco soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unities used for livestock grazing, woodland, and wild fe habitat

The potential plant community on the Flex soil is mainly Thurber needlegrass, bottlebrush squirreltail, Wyoming big eagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush bott ebrush squirreltail, and antelope bitterbrush. Sing a eat pinyon has invaded. The production of forage is limited by the very low available. water capacity. The suitability of this soil for rangeland. seeding is very poor. The main limitations are steepness of slope in some areas and the very low available water capacity. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect the soil from excessive erosion and to prevent overgrazing in the less sloping areas. Because of the density of the pinyon frees in most areas, this soil can be managed as wood and. The reestablishment of the range and plant community in some areas may be difficult.

The Duco soil can produce 4 cords of wood per acre in a stand of prhyon and uniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are the extremely stony surface steepness of slope in some areas, and the hazard of erosion. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The Flex sor is imited for roads because of steepness of slope. The Duco soil is limited for roads because of the steepness of slope, shallow depth to bedrock, and large amount of cobbles and stones in the soil. Roads should be designed to minimize cuts because of the limited depth to bedrock in the Duco soil. Cutting and fling are reduced by building roads in the less sloping

areas of the unit. Roads should be provided with

adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soll create road hazards and increase maintenance cost.

This map unit is an capability subclass VI.e, nonimigated. The Flex soil is an range site 26-15. The Duco soil is not placed in a range site.

792—Pirouette-Osobb-Rock outcrop association.
This map unit is on hills and low mountains. Slope is 0 to 30 percent. Elevation is 4,400 to 5,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 40 percent Pirouette very stony very fine sandy loam, 0 to 8 percent slopes; 40 percent Osobb very stony very fine sandy loam, 8 to 30 percent slopes, and 10 percent Rock outcrop. The Pirouette soil is on the tops of hills and low mountains, the Osobb soils on the sides of hills and low mountains, and Rock outcrop is in steep, eroded areas.

Included in this unit are about 5 percent Osobb so a that have a sandy surface layer and are in the western part of the unit (range site 27-23) and 5 percent Biddleman soils on allowal fans (range site 27-18) Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Pirouette soil is shalow and well drained it formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very stony very fine sandy foam about 4 inches thick. The subsoil is light brown very cobbly clay foam about 10 inches thick. The substratum is a hardpan that is demented with silica and time and is about 9 inches thick. Hard andesite is at a depth of 23 inches. Depth to the hardpan ranges from 11 to 20 inches.

Permeability of this Pirouette son is moderately slow Available water capacity is very low. Effective rooting depth is 11 to 20 inches. Runoff is slow to medium, and the hazard of water erosion is slight. The hazard of soll blowing is slight. This soil is slightly salt- and alkaligatected to a depth of 14 inches.

The Osobb soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock over tuff. Typically, the surface layer averages very stony very fine sandy loam that is light gray. It is about 4 inches thick. The next layer is pale brown extremely cobbly loam about 7 inches thick. Below this is a hardpan that is cemented with slica and lime and is about 1 inch thick. Soft tuff is at a depth of 12 inches. Depth to the hardpan ranges from 8 to 20 inches. Depth to bedrock ranges from 9 to 30 inches.

Permeability of this Osobb soil is moderately rapid Available water capacity is very low. Effective rooting depth is 8 to 20 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Flock outcrop consists of exposed areas of tuff and areas where soil material is less than 4 inches thick over bedrock. These areas support little if any vegetation.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat

The potential plant community on the Pirouette soil is mainly indian ricegrass, shadscale, bottlebrush squirreltail, and bud sagebrush. The present vegetation in most areas is mainly Balley greasewood, shadscale, and bottlebrush squirreltail. The production of forage is mited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the stones on the surface.

The potential plant community on the Osobb soil is mainly Bailey greasewood, shadscale, bottlebrush squirre tail and desert needlegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main imitations are the low average annual precipitation and the stones on the surface.

The Pirouatte son is limited for roads because of the restricted depth to bedrock. The Osobb sod is limited for roads because of the restricted depth to bedrock, steepness of slope, and large stones. Roads should be designed to min mize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbies in the soils create road hazards and increase maintenance cost.

The Pirouette soil is in capability subclass VIIs, nonirrigated, and in range site 27-18. The Osobb soil is in capability subclass VIIe, nonirrigated, and in range site 27-26

793—Pirouette extremely stony very fine sandy loam, 15 to 30 percent slopes. This shallow, well drained soi is on plateaus and hillsides. It formed in residuum derived dominantly from andesite and basalt. E evation is 4 200 to 5,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is light brownish gray extremely stony fine sandy loam about 4 inches thick. The subsor averages very cobbly day foam that is light brown. It is about 14 inches thick. The substratum is a hardpan that is demented with silica and lime and is about 5 inches thick. Hard andesite is at a depth of 23

inches. Depth to the hardpan ranges from 11 to 20 inches. Depth to bedrock ranges from 12 to 23 inches

Included in this unit are about 5 percent Osobb soils on eroded side slopes (range site 27-26), 5 percent Rock outcrop on ridges and slope breaks, and 5 percent areas of Rubble land on steep slopes, mostly below the areas of Rock outcrop, included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Pirouette soil is moderately slow Available water capacity is very low. Effective rooting depth is 11 to 20 inches, Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight. This soil is slightly salt- and alkan-affected to a depth of 14 inches.

This unit is used mainly for livestock grazing. It is a so used for wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale bottlebrush squirreltal, and bud sagebrush. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitations are the low average annual precipitation and the stones on the surface.

This unit is limited for roads because of steepness of slope and restricted depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stablizing areas that have been disturbed.

This map unit is in capability subclass V e noniringated, and in range site 27-18

802—Loomer-Zephan-Olac association. This map unit is on rolling hills. Stope is 15 to 50 percent. Elevation is:5,200 to 6,200 feet. The average annua precipitation is about 8 inches, the average annua air temperature is about 48 degrees F, and the average frost-free penod is 110 to 120 days.

This unit is 35 percent Loomer extremely cobbly loam 15 to 30 percent slopes, 35 percent Zephan extremely cobbly loam, 15 to 50 percent slopes, eroded, and 20 percent Olac extremely stony loam, 15 to 50 percent slopes. The Loomer soil is on north-facing side slopes, the Zephan soil is on south-facing side slopes, and the Olac soil is on nodges.

Included in this unit are about 5 percent soils that are similar to Ffex soils and are in concave areas (range site 26-16), 3 percent Theon soils on south-facing side slopes and ridges (range site 27-17), and 2 percent Veta soils in drainageways (range site 26-24) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Loomer soft is shallow and well drained. It formed in residuum derived dominantly from rhyolite. Typically, the surface layer is brown extremely cobbly loam about 4 inches thick. The subsoil is brown and dark yellowish brown extremely cobbly clay loam and extremely cobbly clay about 11 inches thick. Rhyolite is at a depth of 15 inches. Depth to bedrock ranges from 14 to 20 inches.

Permeability of the Loomer soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Zephan solus moderately deep and well drained it formed in collusium derived dominantly from rhyolite and andesite. Typically, the surface layer is light brownish gray extremely cobbly loam about 2 inches thick. The subsolusiverages very cobbly clay and very cobbly sandy cray that is brown and yellowish brown. It is about 35 inches thick. Weathered andesite is at a depth of 37 inches. Depth to weathered bedrock ranges from 25 to 40 inches.

Permeability of the Zephan soil is slow. Available water capacity is low. Effective rooting depth is 25 to 40 nches. Runoff is rapid, and the hazard of water erosion a moderate. The hazard of soil blowing is slight.

The Olac soil is very shallow and well drained, it formed in residual derived dominantly from rhyolite. Typically, the surface layer is grayish brown extremely stony loam about 4 inches thick. The subsoil is yellowish brown and dark ye lowish brown extremely gravelly clay loam about 10 inches thick. Abyolite is at a depth of 14 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 nones. Bunoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habital

The potential plant community on the Loomer soil is mainly ow sagebrush desert needlegrass, and Nevada ephedra. The present vegetation in most areas is mainly ow sagebrush and desert needlegrass. The production of forage is mited by the low average annual precipitation and very ow available water capacity. The suitability of this soil for range and seeding is very poor. The main mitations are the very low available water capacity and the extremely cobbly surface layer.

The potential plant community on the Zephan soil is mainly low sagebrush. Thurber needlegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this soil for rangeland seeding sivery poor. The main limitations are the extremely cobbit surface layer and steepness of stope in some areas.

The potential plant community on the Olac soil is mainly low sagebrush. Thurber needlegrass, bottlebrush squirreltait, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope in some areas, the extremely stony surface layer, and the very low available water capacity.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. The stones and cobbies on the surface interfere with use of mechanical equipment and the movement of livestock.

The Loomer son is limited for roads because of steepness of slope, restricted depth to bedrock, and large stones throughout the soil. Unless an adequate wearing surface is maintained, stones and cobbies in the soil create road hazards and increase maintenance cost Roads should be designed to minimize cuts because of the limited depth to bedrock.

The Zephan soil is limited for roads because of steepness of slope, low soil strength, and the content of highly expansive clay. Roads should be provided with a stable base and an adequate wearing surface.

The Ofac sort is limited for roads because of steepness of slope and restricted depth to bedrock. Roads should be designed to minimize cuts because of the limited depth to bedrock.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Loomer soil is in capability subclass VIIIe, noningated, and in range site 26-41. The Zephan so is in capability subclass VIIIs, noningated, and in range site 26-25. The Olac soil is in capability subclass VIIIs nonimgated, and in range site 26-25.

603—Loomer association. This map unit is on rolling hills. Slope at 15 to 50 percent. Elevation is 5 800 to 6,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 48 degrees F, and the average frost free period is 100 to 120 days.

This unit is 50 percent Loomer extremely cobbly loam, 15 to 30 percent slopes, and 35 percent Loomer extremely cobbly loam, 30 to 50 percent slopes. The Loomer soil, 15 to 30 percent slopes, is on convex, south- and west-facing side slopes; and the Loomer soil

30 to 50 percent slopes, is on north- and east-facing side slopes.

nctuded in this unit are about 10 percent Rock outcrop on ridges and steep slopes, 3 percent Theorisoils on ridges and upper south-facing slopes (range site 27-17) and 2 percent gravetly soils on concave slopes (range site 26-16). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Loomer soil is shalow and well drained, it formed in residuum derived dominantly from rhyolite. The surface layer is brown extremely cobbly loam about 4 inches thick. The subsoil is brown and dark yellowish brown extremely cobbly dray roam and extremely cobbly day about 11 inches thick. Rhyolite is at a depth of 15 inches. Depth to bedrock ranges from 14 to 20 inches.

Permeability of the Loomer soil, 15 to 30 percent slopes, is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Permeability of the Loomer soil, 30 to 50 percent sopes is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Aunoff is rapid and the hazard of water erosion is moderate. The hazard of soir blowing is slight.

This on tils used for livestock grazing and wildlife habitat.

The potential plant community on the Loomer soil, 15 to 30 percent slopes, is mainly low sagebrush, desert needlegrass, and Nevada ephedra. The present vegetation in most areas is mainly low sagebrush and desert needlegrass. The production of forage is limited by the low average annual precipitation and very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the extremely cobbly surface layer and the very low available water capacity.

The potential plant community on the Loomer soil, 30 to 50 percent slopes, is mainly low sagebrush. Thurber needlegrass bottlebrush squareitail and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush. Thurber needlegrass, and Sandberg bluegrass. The production of forage is limited by the low average annual precipitation and very low available water capacity. The suitability of this soil for range and seeding is very poor. The main limitations are steepness of slope, the extremely cobbly surface layer, and very, ow available water capacity.

Steepness of slope limits access and movement of ivestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the solis in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. The stones and cobbles

on the surface interfere with use of mechanical equipment and the movement of livestock.

This unit is limited for roads because of restricted depth to bedrock, steepness of siope, and large stones. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Roads should be designed to minimize cuts because of the limited depth to bedrock. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIe, noningated. The Loomer soil, 15 to 30 percent slopes, is in range site 26-41, and the Loomer soil, 30 to 50 percent slopes, is in range site 26-25.

811—Trid-Orlt association. This map unit is on mountain pediments. Slope is 4 to 50 percent. Elevation is 6,000 to 6,500 feet. The average annual precipitation is about 13 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 95 to 110 days.

This unit is 40 percent Trid sandy loam. 30 to 50 percent slopes, 30 percent Trid sand 4 to 15 percent slopes, and 15 percent Drit coarse sandy loam, 30 to 50 percent slopes. The Trid sandy loam is on south-facing side slopes, the Trid sand is on pediments, and the Drit soil is on south-facing side slopes.

Included in this unit are about 5 percent deep loamy soils on alluvial tans (range site 26-5), 6 percent Duco soils on mountain ndges (pinyon-juniper wood and), 3 percent clayey soils on terrace tops (range site 26-23), and 2 percent deep, loamy soils on concave side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Trid sandy loam is moderately deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically, the surface layer is grayish brown sandy loam about 4 inches thick. The subsoil is brown very gravelly sandy clay loam about 19 inches thick. Weathered granitic bedrock is at a depth of 23 inches Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Trid sandy loam is moderately slow. Available water capacity is very low. Effective rooting depth is 20 to 40 mohes. Runoff is very rapid and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Trid sand is moderately deep and well drained. It formed in collevium derived dominantly from granitic rock. Typically, the surface layer is grayish brown sand about 4 inches thick. The subsor is yellowish brown very gravelly sandy clay loam about 19 inches thick. Weathered granitic bedrock is at a depth of 23 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Trid sand is moderately slow Available water capacity is very low. Effective rooting depth is 20 to 40 inches, Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

The Drit soi is very deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically the upper 9 inches of the surface tayer is grayish brown and dark grayish brown coarse sandy loam and the ower 16 inches is brown gravelly coarse sandy loam. The subsoil is paid brown very gravelly coarse sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is paid brown very gravely coarse sandy loam.

Permeability of the Drit son is moderately rapid.

Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is sucht.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Trid soils is mainly Thurber need agrass, mountain big sagebrush, Indian ricegrass, and ante ope bitterbrush. The present vegetation in most areas is mainly mountain big sagebrush, anterope bitterbrush, and Thurber need egrass. The production of forage is limited by the very tow available water capacity. The suitability of the Trid sandy loam for rangeland seeding is very poor. The main limitations are the steepness of slope and very low available water capacity. The suitability of the Trid sand for rangeland seeding is very poor. The main limitations are the sandy texture of the surface layer and the very low available water capacity.

The potential plant community on the Drit soil is mainly western wheatgrass, mountain brome, mountain big sagebrush, and basin wildrys. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and western needlegrass. The production of forage is limited by the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main am tation is the steepness of slope.

Steepness of slope limits access and movement of ivestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the solis in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

The Trid sandy oam and Drit soil are limited for roads because of the steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided for roads on the Trid sand damage from frost heaving is minimized. Power equipment is needed to make cuts in the upper part of the bedrock. Roads should be provided with adequate surface drainage.

Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed

The Trid sandy loam is in capability subclass Ville, nonimigated, and in range site 26-46. The Trid sand is in capability subclass VIIs, nonimigated, and in range site 26-46. The Drit soil is in capability subclass VIIe, nonimigated, and in range site 26-5.

612—Trid-Roloc-Drit association. This map unit is on mountainsides and ridges. Slope is 15 to 50 percent. Elevation is 6,000 to 7,500 feet. The average annual precipitation is about 13 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 90 to 105 days.

This unit is 40 percent Trid very story fine sandy loam, 30 to 50 percent slopes, 30 percent Roloc grave y sandy loam, 15 to 50 percent slopes, and 15 percent Drit coarse sandy loam, 15 to 50 percent slopes. The Trid soil is on south- and west-facing side slopes, the Roloc soil is on nidges and convex, south-facing side slopes, and the Drit soil is on north-facing side slopes.

Included in this unit are about 5 percent soils that are similar to Duco soils and are on mountain ridges (pinyon-jumper woodland), 5 percent shallow soils on flat ridges (range site 26-23), 3 percent Rock outcrop on ridges and sleep side slopes, and 2 percent deep loamy so is on concave side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Thd soil is moderately deep and well drained, the formed in colluvium derived dominantly from granulational transfer in the surface layer is grayish brown very story fine sandy loam about 4 inches thick. The subsolaverages very gravelly sandy dray loam that is dark yellowish brown. It is about 19 inches thick, weathered granula bedrock is at a depth of 23 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Trid soil is moderately slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Roloc soil is shallow and well drained. It formed in residuum derived dominantly from grantic bedrock. Typically, the surface layer is dark grayish brown and grayish brown gravelly sandy loam about 8 inches thick. The subsoil is pale brown very gravelly coarse sandy loam about 9 inches thick. Grantic bedrock is at a depth of 17 inches. Depth to bedrock ranges from 14 to 20 inches.

Permeability of the Roloc soil is moderate. Ava. able water capacity is very low. Effective rooting depth is 14 to 20 inches. Rumoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Drit soil is very deep and well drained, it formed in colluvium derived dominantly from granitic cock.

Typically, the upper 9 inches of the surface layer is dark grayish brown coarse sandy loam and the lower 16 inches is brown gravely coarse sandy loam. The subsoil is brown very gravelly coarse sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is yellowish brown very gravelly coarse sandy pam.

Permeability of the Drit soil is moderately rapid.

Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Trid and Roloc soi is mainly Thurber needlegrass, mountain big sagebrush indian neegrass, and antelope bitterbrush. The present vegetation in most areas is mainly mountain big sagebrush, ante ope bitterbrush, and Thurber needlegrass. The production of forage is limited by the very ow available water capacity. The suitability of these soils for rangeland seeding is very poor. The main limitations are the steepness of slope and very low available water capacity.

The potential plant community on the Drit soil is mainly western need egrass, mountain big sagebrush, mountain brome, and basin wildrye. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and western needlegrass. The production of forage is limited by the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope in some areas.

Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Because of the density of the prinyon and juniper trees in most areas, this unit can be managed for wood products. The reestablishment of the range and plant community in some areas may be difficult.

This unit is limited for roads because of steepness of sign in some areas. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Trid soil is in capability subclass VIIs, nonimgated, and in range site 26-46. The Roloc soil is in capability subclass VIIe, nonimgated, and in range site 26-46. The Drit soil is in capability subclass VIIe, nonimgated, and in range site 26-5.

821—Badland. Bad and consists of highly weathered water-laid tuff, diatomaceous earth, siltstone and sandstone dissected by intermittent dramageways. It is essentially barren of vegetation. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is high.

622—Dumps, mine. Dumps, mine, consists of large areas of waste rock and overburden from mining operations. Reclamation of Dumps generally is not feasible because of the low average annual precipitation.

823—Gypsum land. Gypsum land consists of exposures of nearly pure soft gypsum, it supports title if any vegetation. The surface is unstable and erodes easily. Trafficability on Gypsum and is poor

824—Pits, gravel. Pits. gravel, consists of open excavations from which gravel, sand and other material have been removed for uses such as roadfill. These excavations support little if any vegetation.

825—Pits, mine. Pits, mine, consists of arge open excavations from which ore-bearing rock has been removed. These excavations support ittle if any vegetation. Reclamation generally is not feasible.

826—Playas. Playas consists of undrained basins filled with stratified, nearly impervious sediment that contains sufficient salt to essentially prohibit the growth of vegetation. Areas of Playas are subject to soil blowing. Water stands on the surface of these areas after heavy rainfall.

827—Stickens. Stickens consists of accumulations of finely ground, chemically treated rock from one microperations. These accumulations are barren. They generally are confined to specially constructed basins, but in some places they have flowed over the basins and have been deposited on the surface of some sois.

631—later-Hyloc-Lunder association. This map unit is on mountains and associated alluvial fans. Slope is 8 to 50 percent. Elevation is 5.500 to 7,500 feet. The average annual precipitation is about 12 nches, the average annual air temperature is about 46 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 35 percent later extremely stony sandy loam, 30 to 50 percent slopes; 30 percent Hyloc very cobbly sandy loam, 15 to 30 percent slopes, and 20 percent Lunder very cobbly loam, 8 to 15 percent slopes. The later soil is on north- and east-facing mountainsides, the Hyloc soil is on south- and west facing mountainsides, and the Lunder soil is on a luvia fans.

Included in this unit are about 10 percent Rock outcrop on hidges and very steep side slopes and 5 percent Shree soils on alliuvial fans (range site 26-10) included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The later soil is moderately deep and well drained, it formed in residuum and colluvium derived dominantly from andesite. Typically, 40 to 80 percent of the surface

is covered with stones, cobbles, and peobles. The surface layer is dark yellowish brown and light grayish brown extremely stony sandy loam about 17 inches thick. The subsoil is light yellowish brown very stony sandy clay loam about 21 inches thick. Hard bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of the later soil is moderately slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Hylod so, is shallow and well drained it formed in residuum derived dominantly from andesite. Typically the surface layer is grayish brown very cobbly sandy loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. Soft weathered bedrock is at a depth of 18 inches. Hard andesite is at a depth of 24 inches. Depth to soft bedrock ranges from 14 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Permeability of the Hyloc sox is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Flunoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Lunder soi is shallow and well drained it formed in alluvium derived dominantly from andesite. Typically the surface layer is brown very cobbly loam about 7 inches thick. The subsoil is brown cobbly clay about 9 inches thick. The next layer is a hardpan that is comented with since and time and is about 9 inches thick. The substratum to a depth of 60 inches or more is extremely cobbly sandy loam that is weakly to strongly comented with silica and time. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Lunder soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for wood products, investock grazing, wildlife habitat, and watershed

The potential plant community on the lister soil is mainly western need egrass, recurrian big sagebrush, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush and anterope bitterbrush with a heavy invasion of pinyon and juniper trees. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main imitations are steepness of slope and the extremely stony surface layer. Because of the density of the pinyon and juniper trees in most areas, this soil can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

The potential plant community on the Lunder soil is mainly low sagebrush, Thurber needlegrass, and Canby

bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirrelta. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and the very cobbly surface ayer.

The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope imits access and movement of livestock. Livestock grazing should be managed to protect the later and Lunder soils from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

The Hyloc soil can produce 3 cords of wood per acre in a stand of pinyon and jumper trees that average 5 inches in diameter at a height of 1 foot. The militroncerns in producing and harvesting trees are steepness of slope and the very coobly surface layer. Slones and coobles on the surface and steepness of slope interfere with the use of equipment.

The later soil is limited for roads because of steepness of slope. The Hyloc soil is limited for roads because of steepness of slope and low soil strength resulting from the content of highly expansive day. The Lunder soil is mited for roads because of shallow depth to the hardpan and the content of cobbles and stones. Deep cuts in the Lunder soil should be avoided because of the underlying hardpan. Construction and maintenance cost can be reduced if areas of the clayey Hyloc soil are avoided. Roads should be constructed in the less sloping areas of the unit.

The 1ster soil is in capability subclass VIIs, nonimpated, and in range site 26-5. The Lunder soil is in capability subclass VIIs, nonimpated, and in range site 26-23. The Hyloc soil is in capability subclass VIIe, nonimpated.

841—Bradshaw-Hartig association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 7 600 to 9,000 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 50 percent Bradshaw extremely stony loam, 15 to 50 percent slopes, and 35 percent Hartig very gravelly sandy loam, 30 to 50 percent slopes. The Bradshaw soil is on north- and east facing side slopes and the Hartig soil is on south- and west-facing side slopes.

Included in this unit are about 5 percent Shree soils on the bottoms of draws (range site 26-10), 5 percent Lunder soils on plateaus (range site 26-23), and 4 percent Rock outcrop on steep side slopes and ridges. Included areas make up about 15 percent of the tota acreage. The percentage varies from one area to another

The Bradshaw soil is deep and well drained. It formed in residuum and colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown to brown extremely storiy loam about 15 inches thick. The subsoil is pale brown very cobbly loam about 9 inches thick. The upper 4 inches of the substratum is pale brown extremely cobbly loam, and the lower part to a depth of 43 inches is light gray extremely cobbly loam. Fractured andes te is at a depth of 43 inches. Depth to hard bedrock ranges from 40 to 60 inches or more.

Permeability of the Bradshaw soil is moderately rapid Available water capacity is very low. Effective rooting depth is 40 to 60 inches or more. Runoff is medium or rapid, and the hazard of water erosion is moderate. The

hazard of soil blowing is slight.

The Hartig soi is deep and very deep and is well drained it formed in collusion and residuum derived dominantly from andesite. Typically, the surface layer is brown very gravelly sandy loam about 14 inches thick. The subsoil is pale brown very gravelly sandy loam about 10 inches thick. The upper 8 inches of the substratum is very pale brown very gravelly sandy loam, and the lower part to a depth of 60 inches is light gray very gravelly sandy loam. Bedrock is at a depth of 60 inches. Depth to bedrock ranges from 40 to 70 inches or more.

Permeability of the Hartig soid is moderate. Available water capacity is low. Effective rooting depth is 40 to 70 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Bradshaw soil is mainly curlleaf mountainmahogany, mountain big sagebrush, and basin wildrye. The present vegetation in most areas is mainly curlleaf mountainmahogany and mountain big sagebrush. The production of forage is mited by the very low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the steepness of slope in some areas, the extremely stony surface layer, and the very low available water capacity of the surface layer.

The potential plant community on the Hartig soil is mainly western need egrass, mountain brome, mountain big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly mountain big sagebrush and antelope bitterbrush. The production of forage is mitted by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main imitations are steepness of slope and the very gravelly texture of the surface layer.

Steepness of slope lim to access and movement of ivestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Grazing should be delayed until the soils are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

The Bradshaw soil is limited for roads because of steepness of stope and the content of cobbles and stones. The Hartig soil is limited for roads because of steepness of stope. Cutting and filling are reduced by building roads in the less stoping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VI s, noningated. The Bradshaw soil is in range site 26-9 and the Harkg soil is in range site 26-5.

851—Tenpin-Shree association. This map unit is on old alluvial fans. Slope is 4 to 8 percent. Elevation is 6,000 to 7,600 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 55 percent Tenpin very gravelly loam and 35 percent Shree very gravelly loam. The Tenpin soil is in slightly convex areas of old dissected a luvial fans and the Shree soil is in plane or slightly concave areas of alluvial fans.

Included in this unit are about 5 percent Veta soils in drainageways (range site 26-34) and 5 percent loamy soils on inset alluvia, tans (range site 26-10), Included areas make up about 10 percent of the total acreage. The percentage values from one area to another

The Tenpin soil is very deep and well drained. It formed in alluvium derived dominantly from pyroc astic and granitic rock. Typically, the surface layer is brown very gravelly loam about 7 inches thick. The upper 14 inches of the subsoil is pale brown and brown and averages extremely gravelly clay, and the lower 12 inches is light brown and light yellowish brown extremely gravelly clay. The substratum to a depth of 60 inches or more is pale brown extremely cobbly sandy loam.

Permeability of the Tenpin soil is slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is med um, and the hazard of water erosion to shall. The hazard of soil blowing is shall.

is slight. The hazard of soil blowing is sight.

The Shree soil is very deep and well drained, it formed in alluvium derived from various kinds of rock. Typically, the surface layer is brown very gravely loam about 10 inches thick. The upper 11 inches of the subsoil is light yellowish brown very gravelly clay loam, and the lower 5 inches is pale brown extremely gravely sandy clay loam.

The substratum to a depth of 60 inches or more is very pale brown extremely gravelly sandy toam.

Permeability of the Shree soil is moderately slow above the substratum and moderately rapid through it. Available water capacity is low. Effective rooting depth is 60 nches or more Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for fivestock grazing and wildlife habitat. It is also used for pasture in some areas.

The potentia plant community on the Tenpin soil is mainly ow sagebrush, Thurber needlegrass, bottlebrush squirre tall and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreitail and Sandberg bluegrass. The potential plant community on the Shree soil is mainly Thurber need egrass, Wyoming big sagebrush, basin wildrye and anterope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirre tail and Douglas rabbitbrush. The production of forage is limited by the moderate average annual precipitation and low available water capacity.

The suitability of this unit for rangeland seeding is poor. The main limitations are the low available water capacity and the very gravelly texture of the surface layer. Grazing should be delayed until the soils in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is poorly suited to irrigated hay and pasture. The main limitations are slope, the low available water capacity, and the very gravelly texture of the surface ayer of furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope.

Stones and cobbles on the surface of the Tenpin soil make the construction of roads difficult. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. It is difficult to establish and maintain structures that can protect roads on the Shree soil from flash flooding. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclasses IVs, ringated, and VIIs, nontrigated. The Tenpin soil is in range site 26-25, and the Shree soil is in range site 26-10.

861—Shree very gravelly loam, 4 to 8 percent slopes. This very deep, well drained soil is on the upper part of alluvial fans. It formed in alluvium derived from vanous kinds of rock. Elevation is 6,000 to 7,500 feet. The average annual precipitation is about 11 inches, the average annual air temperature is about 48 degrees F, and the average frost free period is 90 to 110 days.

Typically, the surface layer is brown very gravelly loam about 10 inches thick. The upper 11 inches of the subsol averages very gravelly clay loam that is light

yellowish brown, and the lower 5 inches is pale brown extremely gravelly sandy clay loam. The substratum to a depth of 60 inches or more is very pale brown very gravelly sandy loam.

Included in this unit are about 6 percent Fu stone so is on the tops of alluvial fans (range site 26-25), 6 percent Hunewill soils on side slopes of the dissected part of alluvial fans (range site 26-16), and 3 percent Duco soils on toe slopes of mountain spur ridges (pinyon-jun per woodland). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Shree soil is moderately slow above the substratum and moderately rapid through it Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is moderate, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on this unit is mainly Wyoming big sagebrush, anterope bitterbrush, Thurber needlegrass, and basin wildrye. The present vegetation in most areas is mainly pinyon trees with an understory of Wyoming big sagebrush, antelope bitterbrush, and green rabbitbrush. The production of forage is I mited by the moderate average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is poor. The main i mitations are the very gravetly texture of the surface layer and low available water capacity. Grazing should be delayed untit the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

It is difficult to establish and maintain structures that can protect roads on this unit from flash flooding. If surface drainage and a stable base are provided damage from frost heaving is minimized.

This map unit is in capability subclass VIIs noningated, and in range site 26-10.

871—Nati-Luppino-Hotsprings association. This map unit is on hills and associated alluvial fans. Slope is 2 to 15 percent. Elevation is 5,500 to 7,000 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F and the average frost-free period is 90 to 110 days.

This unit is 55 percent Nall grave ly sandy loam, 8 to 15 percent slopes, 20 percent Luppino gravelly sandy loam, 8 to 15 percent slopes, and 15 percent Hotsprings loamy sand, 2 to 8 percent slopes. The Nall soil is on dissected pediments, the Luppino soil is on old pediments, and the Hotsprings soil is on alluvial fans, in dramageways, and on lower lying side slopes.

Included in this unit are about 5 percent Rock outcrop on ridges and dissected side slopes, 4 percent Berit sors on hit tops (pinyon-jumper woodland), and 1 percent wet, dark colored sous on canyon bottoms that have springs or seeps (aspen woodland). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Nall soi is shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer averages brown gravelly sandy loam about 8 inches thick. Weathered bedrock is at a depth of 8 inches. Hard bedrock is at a depth of 20 inches. Depth to soft bedrock ranges from 7 to 20 inches. Depth to hard granitic bedrock ranges from 20 to 30 inches.

Permeability of the Na I soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 7 to 20 inches, Runoff is medium, and the hazard of water erosion is slight. The hazard of soil

blowing is sight.

The Luppino soi is shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is dark brown gravelly sandy loam about 7 inches thick. The subsoil is yellowish brown sandy clay loam about 5 inches thick. Decomposed granitic bedrock is at a depth of 12 inches. Hard bedrock is at a depth of 23 inches. Depth to weathered bedrock ranges from 12 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Permeability of the Luppino soil is moderately slow Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is sight. The hazard of soil

blowing is sight.

The Hotsprings soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock. Typically the surface layer is brown loamy sand about 4 nones thick. The underlying material to a depth of 60 nones or more is yellowish brown gravelly loamy sand.

Permeability of the Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also

used for wild fe habitat

The potentia plant community on the Nall soil is mainly pinyon and jun per woodland. The present vegetation in most areas is mainly pinyon trees with an understory of Wyoming big sagebrush, antelope bitterbrush, and current. This soil is well suited to the production of pinyon trees. It can produce 8 cords per acre in a stand of trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting timber are seedling mortafity and plant competition.

The potential plant community on the Luppino soil is mainly needleandthread, Wyoming big sagebrush. Thurber needlegrass, and bottlebrush squirreitail. The present vegetation in most areas is mainly Indian ricegrass, needleandthread, Thurber needlegrass, and

Wyoming big sagebrush. The production of forage is limited by the low average annual precipitation and the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main umitations are the very low available water capacity and restricted rooting depth.

The potential plant community on the Hotsprings soil is mainly Thurber needlegrass. Wyoming big sagebrush and Indian neegrass. The present vegetation in most areas is mainly Indian ricegrass, bottlebrush squirreltail and Wyoming big sagebrush. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitations are the low average annual precipitation and the low available water capacity.

Grazing should be delayed until the Luppino and Hotsprings soils are firm and the more desirable forage plants have achieved sufficient growth to withstand

grazing pressure

If this unit is used for roads power equipment is needed to make cuts in the upper part of the bedrock in the Nall and Luppino soils. Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclass VIIs nonimigated. The Luppino soil is in range site 26-20, and

the Hotsprings soil is in range site 26-16.

881—Ravenell Variant-Devils Variant association. This map unit is on high plateaus. Slope is 4 to 15 percent. Elevation is 7,800 to 8,500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 45 percent Ravenell Variant grave, y sandy loam and 40 percent Devils Variant gravelly loam. The Ravenell Variant soil is on convex side a opes, and the

Devils Variant soil is on concave side slopes.

included in this unit are about 10 percent deep, loamy soils in swales (range site 26-38) and 5 percent Rock outcrop on ridges and upper side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Ravenell Variant soil is shallow and well drained it formed in residuum derived dominantly from granitic bedrock. Typically, the surface layer averages pale brown gravelly sandy loam and is about 7 inches thick. The upper 4 inches of the subsoil is yellowish brown gravelly clay, and the lower 4 inches is yellowish brown very gravelly clay. Weathered granitic bedrock is at a depth of 15 inches. Depth to bedrock ranges from 12 to 20 inches.

Permeability of the Raveneli Variant soil is slow Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight

The Devils Variant soil is moderately deep and well drained it formed in residuum derived dominantly from granitic bedrock. Typically, the surface layer is grayish brown and brown gravelly foam about 10 inches thick. The upper 6 inches of the subsoil is light yeilowish brown gravelly sandy clay loam, and the lower 14 inches is brown grave by sandy clay loam. Decomposed granitic bedrock is at a depth of 30 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Deviis Variant soil is moderately slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Ravenell Variant soil is mainly low sagebrush. Thurber needlegrass, pine bluegrass, and antelope bitterbrush. The present vegetation in most areas is mainly low sagebrush, pine bluegrass, and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the restricted rooting depth and very low available water capacity.

The potential plant community on the Devils Variant soil is mainly western need egrass, mountain big sagebrush mountain brome, and antelope bitterbrush. The present vegetation in most areas is mainly mountain big sagebrush, Sandberg bluegrass, western need egrass, and antelope bitterbrush. The production of forage is limited by the low available water capacity. The suitability of this soil for range and seeding is fair.

Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Seeding of erge areas of the more favorable Devils Variant soil is difficult because of the pattern in which it occurs with areas of the less favorable Ravenell Variant soil.

The Ravenet Variant soil is limited for roads because of low soil strength and the content of highly expansive clay Cutting and filling are reduced by building roads in the ress sloping areas of the Devils Variant soil Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. When building roads on this unit, construction and maintenance cost can be reduced if areas of the clayey Ravenett Variant sor are avoided.

The Ravenell Variant soil is in capability subclass VIIs, noniringated, and in range site 26-39. The Devils Variant soil is in capability subclass VIs, noniringated, and in range site 26-5.

891-Berit-Shoken association, moderately steep.

This map unit is on mountainsides and rolling hills. Slope is 15 to 50 percent. Elevation is 4,800 to 6,800 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 60 percent Bent very gravely loamy sand, 15 to 30 percent slopes, eroded, and 30 percent Shoken very gravelly coarse sandy loam, 30 to 50 percent slopes. The Bent soil is on south-facing side slopes and rolling hills, and the Shoken soil is on north-facing side slopes.

Included in this unit are about 5 percent Holbrook so is on canyon bottoms and short alluvial fans on lower lying side slopes (range site 26-10) and 5 percent Rock outcrop on ridges and steep side slopes. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Berit soil is very shallow and somewhal excessively drained it formed in residuum derived dominantly from granific rock. Typically, the surface layer is light gray very gravelty loamy sand about 2 inches thick. The subsoil is brown very grave by sandy clay loam about 3 inches thick. Weathered granific bedrock is at a depth of 5 inches. Depth to bedrock ranges from 4 to 12 inches.

Permeability of the Bent soil is moderately slow. Available water capacity is very low. Effective rooting depth is 4 to 12 inches. Flunch is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Shoken soil is very shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is brown very gravelly coarse sandy loam about 5 inches thick. Soft weathered granitic bedrock is at a depth of 5 inches. Unweathered granitic bedrock is at a depth of 26 inches. Depth to weathered bedrock ranges from 3 to 10 inches.

Permeability of the Shoken soil is rapid. Available water capacity is very low. Effective rooting depth is 3 to 10 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for tivestock grazing. this also used for windlife habitat.

The potential plant community on the Berlt soi is mainly desert needlegrass, anterope bitterbrush. Wyoming big sagebrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreitail, desert needlegrass, and green ephedra. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and restricted rooting depth.

The potential plant community on the Shoken so- is mainly Wydming big sagebrush, desert needlegrass, antelope bitterbrush, and green ephedra. The present

vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian neegrass, and scattlered pinyon trees. The production of forage is mited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main imitations are steepness of slope, very low available water capacity, and restricted rooting depth.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent

overgrazing in the less sloping areas.

This unit is mited for roads because of steepness of stope. Cutting and fixing are reduced by building roads in the less stoping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-18.

892—Berit-Shoken association, steep. This map unit is on hit is Stope is 30 to 75 percent. Elevation is 4,800 to 6,800 feet. The average annual precipitation is about 10 inches the average annual air temperature is about 47 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 45 percent Berit very gravelly toamy sand. 30 to 50 percent slopes, eroded, and 40 percent Shoken very gravelly coarse sandy loam, 50 to 75 percent slopes. The Berit soil is on south-facing side slopes and narrow ridges, and the Shoken soil is on north-facing side slopes.

Included in this unit are about 10 percent Rock outcrop on ridges and steep side slopes and 5 percent Holbrook so is on canyon bottoms and short alluvial fans on lower lying side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Berit sor is very shallow and somewhat excessively drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is ght gray very gravely loamy sand about 2 inches thick. The subsoit is brown very gravelly sandy clay loam about 3 inches thick. Weathered granitic bedrock is at a depth of 5 inches. Depth to bedrock ranges from 4 to 12 inches.

Permeability of the Berit soil is moderately slow. Available water capacity is very low. Effective rooting depth is 4 to 12 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Shoken soil is very shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is brown very gravelly coarse sandy loam about 5 inches thick. Weathered granite is at a depth of 5 miches. Unweathered granite is

at a depth of 26 inches. Depth to weathered bedrock ranges from 3 to 10 inches

Permeability of the Shoken sort is rapid. Available water capacity is very low. Effective rooting depth is 3 to 10 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing, it is also used for wildlife habitat

The potential plant community on the Berit soil is mainly desert needlegrass, antelope bitterbrush. Wyoming big sagebrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, desert needlegrass, and green ephedra. The production of forage is mited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope, very low available water capacity, and restricted rooting depth.

The potential plant community on the Shoken so is mainly Wyoming big sagebrush, desert needlegrass antelope bitterbrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, indian ricegrass, and scattered pinyon trees. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope, very low available water capacity, and restricted rooting depth.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stab. Zing areas that have been disturbed.

This map unit is in capability subclass V Is, nonlinigated, and in range site 26-18.

893—Berit-Saralegui association. This map unit is on low, rolling hills and associated alluvial fans. Slope is 4 to 15 percent. Elevation is 6,000 to 6,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 47 degrees F, and the average frost-free penod is 90 to 100 days.

This unit is 60 percent Bent very gravely loamy sand, 4 to 15 percent slopes, and 30 percent Saralegu loamy sand, 4 to 8 percent slopes. The Bent soil is on convex rolling hills, and the Saralegui soil is on concave side slopes and alluvial tans.

Included in this unit are about 5 percent Na. soils on convex hillsides (pinyon-juniper wood and) and 5 percent Holbrook soils in drainageways and on short a livia fans (range site 26-10). Included areas make up about 10

percent of the total acreage. The percentage varies from one area to another.

The Berit soil is very shallow and somewhat excessively drained. It formed in residium derived dominantly from gran-tic rock. Typically, the surface layer is brown very grave-ly loamy sand about 3 inches thick. The upper 2 inches of the subsoil is brown extremely grave y sandy diay loam, and the lower 2 inches is yellow ship brown extremely gravelly sandy clay loam. Weathered granific bedrock is at a depth of 7 inches. Depth to bedrock ranges from 4 to 12 inches.

Permeablity of the Berit soil is moderately slow. Available water capacity is very low. Effective rooting depth is 4 to 12 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil

blowing a slight

The Saralegui sow is very deep and well drained, it formed an alluvium derived dominantly from granitic rock Typically, the surface layer is grayish brown loamy sand about 5 inches thick. The upper 18 inches of the subsoil is yellowish brown sandy loam, and the lower 9 inches is brown sandy loam. The substratum to a depth of 60 inches or more is stratified, light brown and brown sand and loamy sand.

Permeability of the Saraiegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil

blowing is moderate.

This unit is used for wood products, livestock grazing, and wild fe habitat

The potential plant community on the Berit soil is mainly pinyon and juniper woodland. The present vegetation in most areas is mainly pinyon trees with an understory of Wyoming big sagebrush and antelope bitterbrush. The Berit soil is suited to the production of pinyon trees. It can produce 8 cords per acre in a stand of trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting timber are the low average annual precipiation and the very low available water capacity.

The potential plant community on the Saralegui soil is mainly Thurber needlegrass, Wyoming big sagebrush, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and green ephedra. The production of forage is imited by the low average annual precipitation. The suitability of this soil for rangeland seeding is poor. The main imitations are the sandy texture of the surface layer and the low average annual precipitation.

Seeding of large areas of the more favorable Saralegui soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable Berit soils.

if roads are constructed on this unit, power equipment is needed to make cuts in the upper part of the bedrock in the Bent soil if surface drainage and a stable base.

are provided, damage from frost heaving is minimized. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VIIs. noningated. The Saralegui soil is in range site 26-16.

911—Fulstone Variant-Devils-Glean association. This map unit is on high plateaus. Slope is 0 to 15 percent. Elevation is 8,600 to 9,500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 44 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 50 percent Fu stone Variant extremely cobbly loam, 0 to 8 percent slopes, 25 percent Devils very cobbly loam, 4 to 15 percent slopes, and 20 percent Glean cobbly loam, 8 to 15 percent slopes. The Fulstone Variant soil is in plane, sightly convex areas the Devils soil is in rolling, convex areas, and the Glean soil is in concave colluvial draws and swales.

Included in this unit is about 5 percent Rock outcrop on nodes.

The Fulstone Variant soil is moderately deep and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is grayish brown extremely cobbly loam about 5 inches thick. The subsoil averages brown and yellowish brown clay or gravelly clay and is about 20 inches thick. The next layer is a hardpan that is strongly cemented with silica and lime and is about 15 inches thick. Depth to the hardpan ranges from 20 to 30 inches.

Permeability of the Fulstone Variant soil is slow. Available water capacity is low. Effective rooting depth is 20 to 30 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Devils soil is moderately deep and well drained. It formed in residuum derived dominantly from andesite Typically, the surface layer is grayish brown very cobbly loam about 7 inches thick. The subsoil is brown very gravelly diay loam about 15 inches thick. Weathered andesite is at a depth of 22 inches. Unweathered bedrock is at a depth of 30 inches. Depth to weathered bedrock ranges from 20 to 36 inches. Depth to hard bedrock ranges from 22 to 40 inches.

Permeability of the Devils soil is slow. Available water capacity is low. Effective rooting depth is 20 to 36 inches. Runoff is slow or medium, and the hazard of water erosion is siight. The hazard of soil blowing is shight.

The Glean soil is deep and very deep and is we drained. It formed in alluvium and colluvium derived from various kinds of rock. Typically, the surface layer is brown cobbly loam about 24 inches thick. The underlying material to a depth of 51 inches is pale brown very cobbly loam. Unweathered bedrock is at a depth of 51 inches. Depth to bedrock ranges from 40 to 70 inches or more.

Permeability of the Glean soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 40 to 70 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wild fe habitat

The potential plant community on the Fulstone Variant and Devils so is is mainly low sagebrush. Thurber needlegrass, antelope bitterbrush, and pine bluegrass. The present vegetation in most areas is mainly low sagebrush bottlebrush squirreltail, and antelope bitterbrush. The production of forage is limited by the low available water capacity and the low soil temperatures. The suitability of these soils for rangeland seeding is very poor. The main limitations are the large amount of cobbles on the surface.

The potential plant community on the Glean soil is mainly western needlegrass, mountain big sagebrush, and spike fescue. The present vegetation in most areas is mainly mountain big sagebrush, western needlegrass, and anterope bitterbrush. The production of forage is mitted by the low soil temperatures. The suitability of this soil for rangeland seeding is fair. The main limitation is the amount of cobbies in the surface layer.

Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of westock.

The Fulstone Variant soil is limited for roads because of low soil strength and the content of highly expansive clay. Roads should be provided with a stable base and an adequate wearing surface. If surface drainage and a stable base are provided, damage from frost heaving on the Devils and Glean soils is minimized. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Unless an adequate wearing surface is maintained, stones and cobbies in the soil create road hazards and increase maintenance cost.

The Fulstone Variant and Devits soils are in capability subclass Vills, noningated, and in range site 26:39. The Glean soil is in capability subclass VIs, noningated, and in range site 26:38.

921—Glean-Devils association. This map unit is on high plateaus. Slope is 4 to 15 percent. Elevation is 8 600 to 9 500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 50 percent Glean gravelly loam, 8 to 15 percent slopes, and 40 percent Devils very cobbly loam, 4 to 15 percent slopes. The Glean soil is in concave colluvial draws and swales, and the Devils soil is on convex side slopes.

Included in this unit are about 5 percent Fuistone Variant soës on old alluvial fans (range site 26-39) and 5 percent Rock outcrop, mainly on ridges. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Glean soil is very deep and deep and is well drained. It formed in alluvium and co. uvium derived from vanous kinds of rock. Typically, the surface layer is brown gravelly loam about 14 inches thick. The underlying material to a depth of 60 inches or more is brown and pale brown very cobbly loam. Depth to bedrock ranges from 40 to 70 inches.

Permeability of the Glean soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 40 to 70 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Devils soil is moderately deep and well drained, it formed in residuum derived dominantly from andesite. Typically, the surface layer is grayish brown very cobbiy loam about 7 Inches thick. The subsoil is yellowish brown very gravelly clay loam about 15 inches thick. Weathered andesite is at a depth of 22 inches. Hard bedrock is at a depth of 30 inches. Depth to weathered bedrock ranges from 20 to 36 inches. Depth to hard bedrock ranges from 22 to 40 inches.

Permeability of the Devils soil is slow. Available water capacity is low. Effective rooting depth is 20 to 36 inches. Runoff is slow or medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Gigan soil is mainly mountain big sagebrush antelope bitterbrush, western needlegrass, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, western needlegrass and snowberry. The production of forage is limited by the moderate available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is fair.

The potential plant community on the Devils so. is mainly low sagebrush. Thurber needlegrass, and pine bluegrass. The present vegetation in most areas is mainly low sagebrush, pine bluegrass, and bottlebrush squirreltail. The production of forage is mited by the low available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is the amount of cobbles in the surface layer. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

Grazing should be delayed until the sol, is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

Cutting and fiting are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

The Grean soil is in capability subclass VIc, nonirrigated, and in range site 26-5. The Devils soil is in capability subclass VIIs, nonirrigated, and in range site 26-39.

922—Glean-Devils-Rock outcrop association. This map unit is on colluvial side slopes and plateaus. Slope is 15 to 30 percent. Elevation is 8,600 to 9,500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 35 percent Grean gravelly foam, 15 to 30 percent slopes, 30 percent Devils very cobbly foam, 15 to 30 percent slopes; and 20 percent Rock outcrop. The Grean soil is in concave colluvial swales and draws, the Devils soil is on convex side slopes, and the Rock outcrop is on ridges.

Included in this unit are about 10 percent Fulstone Variant so is on old a uvia fans (range site 26-39) and 5 percent Rubble and on steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The G ean soil is very deep and deep and is well drained it formed in a Juvium and colluvium derived from various kinds of rock. Typically, the surface layer is brown gravely loam about 14 inches thick. The underlying materia, to a depth of 51 inches is pale brown very cobbly loam. Unweathered bedrock is at a depth of 51 inches. Depth to bedrock ranges from 40 to 70 inches or more.

Permeability of the Glean soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 40 to 70 inches. Bunoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is sight.

The Devils so, is moderately deep and well drained. If formed in residuum derived dominantly from andesite. Typically, the surface rayer is grayish brown very cobbly roam about 7 inches thick. The subsoil is brown very gravelly clay loam about 15 inches thick. Weathered andesite is at a depth of 22 inches. Hard bedrock is at a depth of 30 inches. Depth to weathered bedrock ranges from 20 to 36 inches. Depth to hard bedrock ranges from 22 to 40 inches.

Permeability of the Devils soil is slow. Available water capacity is low. Effective rooting depth is 20 to 36 notes. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of andesite. This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Glean soil is mainly mountain big sagebrush, antetope bitterbrush,

snowberry, mountain brome, and western needlegrass. The present vegetation in most areas is mainly mountain big sagebrush, western needlegrass, anterope bitterbrush, and snowberry. The production of forage is limited by the moderate available water capacity and low soil temperatures. The suitability of this soil for range and seeding is fair.

The potential plant community on the Devils so, is mainly low sagebrush, Thurber needlegrass, and pine bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirrertal, and antelope bitterbrush. The production of forage is limited by the low available water capacity and low sol temperature. The suitability of this soil for rangeland seeding is very poor. The main limitation is the amount of cobbles in the surface layer. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Glean soil is in capability subclass VIe noningated, and in range site 26-5. The Deviis soil is in capability subclass VIIs, noningated, and in range site 26-39.

923—Glean-Ticino-Hartig association. This map unit is on mountains. Slope is 30 to 50 percent. Elevation is 7,600 to 9,000 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 40 percent Glean very grave y sandy loam. 25 percent Ticino extremely gravelly sandy loam, and 20 percent Hartig very gravelly sandy loam. The Glean soil is on north-facing side slopes, the Ticino soil is on upper south-facing side slopes and on ridges, and the Hartig soil is on lower north-facing side slopes.

Included in this unit are about 10 percent Rubbie land mainly on very steep, south facing side slopes and 5 percent Rock outcrop on ridges and very steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Glean soil is deep and very deep and is we drained. It formed in alluvium and colluvium derived from various kinds of rock. Typically, the surface layer is brown very gravelly sandy foam about 14 inches thick. The underlying material to a depth of 51 inches or more is pale brown very cobbly foam. Unweathered bedrock is

at a depth of 51 inches. Depth to bedrock ranges from 40 to 70 inches

Permeab ity of the Glean soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 40 to 70 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight

The Ticino soil is moderately deep and well drained. It formed in residuum derived dominantly from rhyolite Typically, the surface layer is very dark grayish brown extremely gravelly sandy toam about 12 inches thick The subsoil is brown gravelly loam about 16 inches thick. Highly fractured rhyolite is at a depth of 28 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Ticino soil is moderate. Available water capacity is low. Effective rooting depth is 20 to 40. inches. Runoff is rapid, and the hazard of water erosion.

is high. The hazard of soil blowing is slight.

The Hartig so is very deep and deep and is well drained. It formed in residuum derived dominantly from andesite and rhyorite. Typically, the surface layer is brown to light gray very gravelly sandy loam about 14 inches thick. The subsoil is pale brown very gravelly sandy dam about 10 inches thick. The substratum to a depth of 60 inches or more is very pale brown very gravelly sandy loam. Depth to bedrock ranges from 40 to

Permeability of the Hartig soil is moderate. Available water capacity is low. Effective rooting depth is 40 to 70 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Glean soil is mainly mountain big sagebrush, anterope bitterbrush, western needlegrass, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush, snowberry, and antelope bitterbrush. The production of forage is limited by the moderate available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope

The potential plant community on the Ticino sod is main y curtieat mountainmahogany, mountain big sagebrush common snowberry, and pine bluegrass. The present vegetation in most areas is mainly curlleaf mountainmahogany mountain big sagebrush, and bottlebrush squirreltan. The production of forage is lim ted by the low ava, able water capacity and low soil. temperatures. The suitability of this soil for rangeland. seeding is very poor. The main limitation is steepness of

The potential plant community on the Hartig soil is mainly western needlegrass, mountain big sagebrush, mountain brome, and basin wildrye. The present vegetation in most areas is mainly mountain big sagebrush, green ephedra, and singleleaf pinyon. The production of forage is limited by the low available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass V is nonimigated. The Glean and Hartig so is are in range site. 26-5, and the Ticino soil is in range site 26-9.

932—Shoken-Rock outcrop association. This map unit is on hills and mountains. Slope is 50 to 75 percent. Elevation is 5,200 to 6,400 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 100 to 110 days.

This unit is 65 percent Shoken very gravely coarse. sandy loam, 50 to 75 percent slopes, and 20 percent Rock outcrop. The Shoken soil is on side slopes, and the Rock outcrop is on extremely steep side slopes and on ridges.

included in this unit are about 10 percent Chill soils on broad ridgetops (range site 26-11) and 5 percent Veta soils on short alluvial fans and in dra nageways (range site 26-24), included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Shoken son is very shallow and well drained. It formed in residuum derived dominantly from grantic rock. Typically, this soil is pale brown very grave y coarse sandy loam about 5 inches deep over soft, weathered granitic bedrock. Hard bedrock is at a depth of 26 inches. Depth to soft bedrock ranges from 3 to 10 inches

Permeability of the Shoken soil is rapid. Available water capacity is very low. Effective rooting depth is 3 to 10 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of grantic bedrock and areas where sof material is less than 4 inches thick over bedrock. These areas support very little if any vegetation

This unit is used mainly for wildlife habitat. It is also used for limited livestock grazing

The potential plant community on the Shoken soil is mainly Wyoming big sagebrush, anterope bitterbrush. Thurber needlegrass, and desert need egrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, desert needlegrass, and antelope bitterbrush. The production of forage is limited by the very low available water capacity and restricted. rooting depth. The suitability of this soil for rangeland. seeding is very poor. The main limitations are steepness. of slope, restricted rooting depth, and very low available water capacity. Steepness of slope limits access and movement of ivestock. Livestock grazing should be managed to protect this soil from excessive erosion and to prevent overgrazing in the less sloping areas.

This unit is limited for roads because of steepness of slope and the areas of Rock outcrop. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stablizing areas that have been disturbed.

The Shoken so: is in capability subclass Vils. nonirrigated, and in range site 26-18.

951—Koontz-Ravenell-Haar association. This map unit is on foothills and terraces. Slope is 8 to 30 percent. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 45 percent Koontz very gravely sandy loam, 8 to 15 percent slopes, 20 percent Ravenell very gravely loam, 8 to 15 percent slopes, and 20 percent Haar gravely loam, 15 to 30 percent slopes. The Koontz soils on footh is and upper side slopes, the Ravenel soils on the tops of terraces and on side slopes, and the Haar soil is on dissected side slopes of terraces.

Included in this unit are about 7 percent Fulstone soils on south-facing side slopes (range site 26-25), 5 percent Nosracisco side slopes (range site 26-5) and 3 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Koontz soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from metavolcanic rock. Typically, 60 to 80 percent of the surface is covered with pebbles. The surface layer is grayish brown very gravelly sandy loam about 2 inches thick. The subsoil is yellowish brown very gravelly clay loam about 15 inches thick. Weathered bedrock is at a depth of 17 inches. Depth to weathered bedrock ranges from 8 to 20 inches.

Permeability of the Koontx soil is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Ravenell soil is very shallow and well drained. It formed in alluvium derived dominantly from mixed igneous rock over Tertiary sediment. Typically, 40 to 70 percent of the surface is covered with peobles, cobbles, and stones. The surface layer is grayish brown very gravelly loam about 3 inches thick. The subsoil is brown very gravelly clay about 4 inches thick. Weathered sandstone is at a depth of 7 inches. Unweathered

sandstone is at a depth of 11 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of the Ravenell soil is slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is a ght.

The Haar soil is very shallow and well drained it formed in residuum derived dominantly from sandstone, siltstone, and mudstone. Typically, the surface layer is light brownish gray silt loam about 2 inches thick. The underlying material to a depth of 6 inches is light gray gravelly loam. Weathered sedimentary bedrock is at a depth of 6 inches. Depth to bedrock ranges from 4 to 10 inches.

Permeability of the Haar soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Koontz soil is mainly Thurber needlegrass, bott ebrush squirrelta. Wyoming big sagebrush antelope bitterbrush, and indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, antelope bitterbrush, and bottlebrush squirreltail. The potential and present plant community on the Ravenell soil is mainly galeta, low sagebrush, and Indian ricegrass. The potential plant community on the Haar soil is mainly desert needlegrass Wyoming big sagebrush. Indian ricegrass, and antelope bitterbrush. The present vegetation in most areas is mainly bottlebrush squirreltail, desert needlegrass. Wyoming big sagebrush, and Douglas rabbitbrush.

The production of forage on this unit is limited by the very low available water capacity and the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitations are the very low available water capacity and restricted rooting depth. Grazing should be delayed until the so is are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

If surface drainage and a stable base are provided for roads on the Koontz soil, damage from frost heaving a minimized. The Haar soil is limited for roads because of steepness of slope. If roads are constructed on this unit, power equipment is needed to make cuts in the upper part of the bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the Koontz and Ravenell soils. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs. nonringated. The Koontz soil is in range site 26-15, the Ravenell soil is in range site 27-49, and the Haar soil is in range site 26-29.

961—Luppino gravelly sandy loam, 8 to 15 percent slopes. This shallow, well drained soil is on low hills. It formed in residuum derived dominantly from granitic bedrock. E evation is 6,500 to 7,600 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 80 to 100 days.

Typically, the surface layer is brown gravelly sandy loam and loam about 7 inches thick. The subsoit is yellowish brown sandy dray loam about 5 inches thick weathered granite is at a depth of 12 inches. Hard bedrock is at a depth of 21 inches. Depth to weathered gran to ranges from 12 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Included in this unit is about 10 percent Nail soils on knolls (pinyon-juniper woodland).

Permeability of this Luppino soil is moderately slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wild ite habitat

The potential plant community on this unit is mainly need eardthread. Thurber needlegrass, and Wyoming big sagebrush. The present vegetation in most areas is mainly. Wyoming big sagebrush, bottlebrush squirrellail need eardthread, and Indian ricegrass. The production of forage is limited by the very low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitations are the very low available water capacity, and restricted rooting depth.

Cutting and filing are reduced by building roads in the less sloping areas of the unit. Power equipment is needed to make cuts in the upper part of the bedrock. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclass VIIs, noniringated, and in range site 26-20.

971—Minneha-Drit-Rock outcrop association. This map unit is on mountains. Slope is 50 to 75 percent Elevation is 7,000 to 8,000 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 95 to 110 days.

This unit is 40 percent Minneha extremely stony sandy loam, 30 percent Drit extremely stony sandy loam, and 15 percent Rock outcrop. The Minneha soil is on southfacing, convex side slopes and on ridges and shoulders, and the Drit soil is on north- and east-facing side slopes.

ncluded in this unit are about 7 percent Roloc soils (range site 26-46), 6 percent Holbrook soils on alluvial fans and carryon bottoms (range site 26-10), and 2 percent wet, dark corored soils that support meadow vegetation. Included areas make up about 15 percent of

the total acreage. The percentage varies from one area to another

The Mirineha soil is shallow and somewhat excessively drained. It formed in residuum derived dominantly from granitic bedrock. Typically, the surface layer is dark grayish brown extremely stony sandy oam about 5 inches thick. The underlying material to a depth of 18 inches is grayish brown and pale brown and averages very gravelly sandy foam. Partially weathered bedrock is at a depth of 18 inches. Depth to bedrock ranges from 13 to 20 inches.

Permeability of the Minneha soil is moderately rapid Available water capacity is very low. Effective rooting depth is 13 to 20 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of so blowing is slight.

The Drit soil is very deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically, the surface is covered with pine needles and leaves about 3 inches thick. The surface tayer is dark grayish brown extremely stony sandy loam about 9 inches thick. The subsoil is paie brown very grave by coarse sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly coarse sandy loam.

Permeability of the Drit soil is moderately rapid Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of grandic bedrock

This unit is used for wood products, livestock grazing and wildlife habitat

The Minneha soil can produce 5 cords of wood per acre in a stand of phyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope, the extreme storiness of the surface ayer, and the hazard of erosion. Stones and coobles on the surface and steepness of slope interfere with the use of equipment.

The potential plant community on the Drit soil is it may mountain big sagebrush, antelope bitterbrush, western needlegrass, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and western needlegrass. Pinyon and jumper trees have invaded. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope and the extreme storiness of the surface layer. Steepness of slope limits access and movement of rivestock. Livestock grazing should be managed to protect this soil from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soil is

firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Because of the density of the pinyon and juniper trees in most areas, this soil can be managed for wood products. The reestablishment of the range and plant community in some areas may be difficult.

This unit is limited for roads because of steepness of stope and areas of Rock outcrop. Cutting and filling are reduced by building roads in the less stoping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

The Minneha soil is in capability subclass VIIe, nonirrigated. The Drit soil is in capability subclass VIIs, nonirrigated, and in range site 26-5.

972—Minneha-Berit-Wile association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 6 800 to 7 800 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 85 to 105 days.

This unit is 30 percent Minneha extremely stony sandy loam 30 to 50 percent slopes. 30 percent Bent extremely stony loam, 30 to 50 percent slopes, and 25 percent Wie gravely sandy loam, 15 to 30 percent slopes. The Minneha soil is on north- and east-facing mountainsides, the Bent soil is on south-facing mountainsides, and the Wile soil is on ridges and upper south-facing mountainsides.

Included in this unit are about 10 percent Holbrook so sion stream terraces and alluvial fans (range site 26-10) and 5 percent Rock outcrop on ridges and steep side siopes, included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Minneha soil is shallow and somewhal excessively drained it formed in residuum derived dominantly from granitic rock. Typically, the surface layer is brown extremely stony sandy loam about 5 inches thick. The underlying material, to a depth of 18 inches, is very gravelly sandy loam. Weathered granitic bedrock is at a depth of 18 inches. Depth to bedrock ranges from 13 to 20 inches.

Permeability of the Minneha soil is moderately rapid Available water capacity is very low. Effective rooting depth is 13 to 20 inches, Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Bent soil is very shallow and somewhat excessively drained it formed in residuum and colluvium derived dominantly from grantic rock. Typically, the surface layer is brown extremely story loam about 3 inches thick. The subsoil is brown and yellowish brown

extremely cobbly clay loam about 4 inches thick Weathered grantic bedrock is at a depth of 7 inches Depth to bedrock ranges from 4 to 12 inches

Permeability of the Berit soil is moderately slow Available water capacity is very low. Effective rooting depth is 4 to 12 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Wile soil is shallow and well drained, it formed in residuum derived dominantly from granitic rock. Typically, the surface layer is dark grayish brown gravelly sandy loam about 7 inches thick. The subsoil averages brown gravelly clay and is about 11 inches thick. Soft, weathered granitic bedrock is at a depth of 18 inches Depth to bedrock ranges from 12 to 20 inches.

Permeability of the Wile soil is slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for wood products and wild fe habitat

The Minneha soil can produce 5 cords of wood per acre in a stand of priyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope, the extremely story surface eyer, and the hazard of erosion. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The Berit soil can produce 8 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope, the extreme atominess of the surface layer, very shallow soil depth, and moderate available water capacity. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The Wile soil can produce 4 cords of wood per acre in a stand of prayon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are limited access because of the surrounding steep and extremely story Minneha and Berit soils.

This unit is limited for roads mainly because of the extreme storiness of the surface layer and steepness of slope. The Wife soil is also limited by the content of highly expansive clay. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface dramage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. When building roads on this unit, construction and maintenance cost can be reduced if areas of the clayey. Wife soil are avoided.

The Minneha and Wile soils are in capability subclass Vite, nonringated, and the Berit soil is in capability subclass Vits, nonringated. 961—Ravenell very gravelly loam, 8 to 30 percent slopes. This very shallow, well drained soil is on rolling hills. It formed in alloyum derived from various kinds of rock and overlying Tertiary sediment. Elevation is 5,500 to 7,000 feet. The average annual precipitation is about 9 nones, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 110 days.

Typically, the surface layer is grayish brown very gravelly dam about 3 inches thick. The subsoil is brown very gravelly sandy day about 4 inches thick, Weathered sandstone is at a depth of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Included in this unit are about 10 percent Haar soils on steep eroded side slopes (range site 26-29) and 5 percent Rock outcrop on ridges and steep side slopes Included areas make up about 15 percent of the total area. The percentage varies from one area to another

Permeability of this Ravenet soil is slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. If is also used for wild fe habitat

The potential plant community on this unit is mainly low sagebrush, galleta, and indian neegrass. The present vegetation in most areas is mainly low sagebrush galleta bottlebrush squirreltail, and desert needlegrass. The production of forage is limited by the low average annual precipitation and very low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity.

This unit is limited for roads because of the moderately steep slopes in some areas. Cutting and 1 ling are reduced by building roads in the less stoping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-49.

982—Ravenell-Haar-Rock outcrop association. This map unit is on hills. Slope is 15 to 50 percent. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost free period is 100 to 120 days.

This unit is 40 percent Ravenell very gravelly loam, 15 to 30 percent slopes, 25 percent Haar gravelly loam, 30 to 50 percent slopes, and 20 percent Rock outcrop. The Ravenell soil is on hill tops and side slopes, the Haar soil is on eroded side slopes, and the Rock outcrop is on ridges and steep side slopes.

Included in this unit are about 9 percent Fulstone soils on remnants of alluvial fans (range site 26-25) and 6

percent Veta soils in drainageways (range site 26-24) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Flavenell soil is very shallow and well drained it formed in alluvium derived dominantly from mixed igneous rock overlying Tertiary sediment. Typically, the surface layer is grayish brown very gravelly doan about 3 inches thick. The subsoil is brown very gravelly clay about 4 inches thick. Weathered sandstone is at a depth of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of the Raveneli soi is slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soi blowing is slight.

The Haar soil is very shallow and well drained it formed in residuum derived dominantly from sandstone siltstone, and modstone. Typically, the soil averages light gray gravelly loam. It is about 6 nones thick over soft siltstone. Depth to bedrock ranges from 4 to 10 inches.

Permeability of the Haar son is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of Tertiary sediment

This unit is used mainly for livestock grazing it is also used for wildlife habitat

The potential plant community on the Ravene soil is mainly low sagebrush, galleta, and indian ricegrass. The present vegetation in most areas is mainly low sagebrush galleta, and bott ebrush squirrelta. The production of forage is limited by the low average annual precipitation, very low available water capacity, and cas of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity.

The potential plant community on the Haar soi is mainly desert needlegrass, Indian ricegrass, antelope bitterbrush, and Wyoming big sagebrush. The present vegetation in most areas is mainly bothebrush squirrelfail, desert needlegrass, spiny hopsage, and antelope bitterbrush. The production of forage is limited by the low average annual precipitation, very ow available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and steepness of slope.

Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be

provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs. The Ravenes soil is in range site 27.49, and the Haar soil is nirange site 26-29.

991—Roloc-Drit association. This map unit is on mountains. Slope is 50 to 75 percent. Elevation is 5,000 to 6,000 feet. The average annual precipitation is about 12 nches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 95 to 100 days.

This unit is 55 percent Roloc very gravelly sandy loam, eroded and 35 percent Drit stony sandy loam. The Roloc soil is on ridges and convex side slopes, and the Drit so lis on concave side slopes.

Included in this unit are about 7 percent sandy soils on toe slopes of mountains and on short alluvial fans (range site 26-26) and 3 percent flock outcrop on ridges and steep side slopes. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Roloc soil is shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is grayish brown and dark grayish brown very gravelly sandy toam about 9 inches thick. The subsoil is grayish brown very gravelly coarse sandy foam about 8 inches thick. Weathered bedrock is at a depth of 17 inches. Depth to weathered bedrock ranges from 14 to 20 inches.

Permeability of the Roloc soil is moderate. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Drit soi is very deep and well drained. It formed in collusium derived dominantly from granitic rock. Typically, the surface layer is dark grayish brown and dark brown stony sandy loam about 20 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly coarse sandy loam.

Permeability of the Ont soil is moderately rapid Available water capacity is low. Effective rooting depth is 60 noties or more. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is sight.

This unit is used for investock grazing and wildlife habitat

The potential plant community on the Roloc soil is mainly Wyoming big sagebrush, green ephedra, desert need egrass, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, and desert needlegrass. The production of forage is limited by the very low available water capacity, moderate average annual precipitation, and loss of moisture because of runoff. The suitability of this soil for range and seeding is very poor. The main

limitations are steepness of slope and the very low available water capacity

The potential plant community on the Drit soil is mainly western needlegrass, mountain brome, and mountain big sagebrush. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and Sandberg bluegrass. The production of forage is limited by the low available water capacity and loss of mo sture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main mitation is steepness of slope.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Loss of the surface layer results an a severe decrease in productivity and in the potential of the Roloc soil to produce plants suitable for grazing. Grazing should be delayed until the soils in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Roloc soil is in capability subclass Vile. nonimigated, and in range site 26-11. The Drit soil is in capability subclass VIIs. nonimigated, and in range site 26-5.

1001—Rowel very cobbly sandy loam, 8 to 30 percent slopes. This shallow, well drained soft is on hillsides and mountainsides. It formed in residuum derived dominantly from andesite. Elevation is 5,600 to 6,600 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

Typically, the surface layer averages light brownish gray very cobbly sandy loam and is about 6 inches thick. The subsoil is brown extremely cobbly diay about 8 inches thick. Andesite is at a depth of 14 inches. Depth to bedrock ranges from 10 to 14 inches.

Included in this unit is about 10 percent Fulstone so is on old alluvial fan remnants (range site 26-25)

Permeability of this Rowel soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 14 inches. Hunoff is medium, and the hazard of water erosion is moderate. The hazard of sofi blowing is slight.

This unit is used mainly for livestock grazing it is also used for wildlife habitat.

The potential plant community on this unit is mainly low sagebrush, galleta, and indian neegrass. The present vegetation in most areas is mainly low sagebrush, galleta, and bottlebrush squirreltail. The production of

forage is limited by the very low available water capacity and low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity.

This unit is limited for roads because of shallow depth to hard bedrock, the large amount of cobbles and stones, and steepness of slope in some areas. Roads should be designed to minimize cuts because of the mited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, noningated, and in range site 27-49

1002—Rowel-Rock outcrop association. This map unit is on hills and low mountains. Slope is 30 to 50 percent. Elevation is 5,600 to 7,000 feet. The average annual precipitation is about 9 niches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 70 percent Rowel very stony sandy loam, 30 to 50 percent slopes, and 20 percent Rock outcrop. The Rowel soil is on hillsides and mountainsides, and the Rock outcrop is on ridges and very steep side slopes.

Included in this unit are about 5 percent Reno Variant soils on hill tops and rounded ridges (range site 27-49) and 5 percent asky soils in small pockets on the leeward side of hill s and mountains (pinyon-juniper woodland) included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Rowe soil a shallow and well drained it formed in residuum derived dominantly from andesite. Typically, the surface layer is light brownish gray very story sandy loam about 6 inches thick. The subsoil is brown very cobbly clay about 8 inches thick. Hard andesitic bedrock is at a depth of 14 inches. Depth to bedrock ranges from 10 to 14 inches.

Permeability of the Rowel soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 14 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of andesite.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Howel soil is mainly low sagebrush, galleta, and Indian ricegrass. The present vegetation in most areas is mainly low sagebrush, galleta, and bottlebrush squareltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss

of moisture because of runoff. Livestock grazing should be managed to protect the soil from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the Rowel soil to produce plants suitable for grazing.

This unit is limited for roads because of the areas of Rock outcrop, steepness of slope, shallow depth to hard bedrock, and the large amount of cobbles and stones in the soil. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less stoping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

The Rowel soil is in capability subclass Ville, noningated, and in range site 27-49

1011—Smedley very gravelly sandy loam, 2 to 4 percent slopes. This shallow, well drained soll is on alluvial fans. It formed in alluviam derived from mixed igneous rock. Elevation is 5,200 to 6,400 feet. The average annual precipitation is about 6 inches the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brown shigray very gravely sandy loam about 2 inches thick. The subsoil averages brown gravelly clay loam and is about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. The hardpan is at a depth of 14 to 20 inches.

included in this unit are about 8 percent Ravenell so a on fair remnants (range site 27-49), 4 percent Maipais soils on inset alluvial fans (range site 27-18), and 3 percent Haar soils on eroded side slopes (range site 26-11). Included areas make up about 15 percent of the total acreage. The percentage vanes from one area to another.

Permeability of this Smediey son is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wild ife habitat

The potential plant community on this unit is mainly galleta, Bailey greasewood, shadscale, and Indian incegrass. The present vegetation in most areas is mainly shadscale, Indian incegrass, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitation is the low average annual precipitation.

This unit is imited for roads because of the hardpan and ow soil strength. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass Vils, non-riigated, and in range site 27-15

1012—Smedley stony sandy loam, 4 to 8 percent slopes. This shallow, well drained soil is on alluvial fans it formed in alluvium derived from mixed igneous rocks. Elevation is 5,200 to 5,400 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically the surface layer is light brownish gray stony sandy loam about 2 inches thick. The subsoil is brown grave by clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravely sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

ncluded in this unit are about 8 percent Raveriell soils on fan remnants (range site 27-49), 4 percent Malpais so sion inset alluvial fans (range site 27-18), and 3 percent Haar soils on eroded side slopes (range site 26-29). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Smedievisori is stow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on this unit is mainly galleta, Balley greasewood, and Indian ricegrass. The present vegetation in most areas is mainly galleta, Balley greasewood, and shadscale. The production of forage is mitted by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main imitation is the low average annual precipitation.

This unit is imited for roads because of the hardpan and low soil strength. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs. noningated and in range site 27-15.

1013—Smedley association, stoping. This map unit is on a uvia fans. Slope is 2 to 15 percent. Elevation is 5 200 to 6,400 feet. The average annual precipitation is about 6 inches the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Smedley very gravelly sandy loam that has slopes of 2 to 4 percent and 25 percent Smedley stony sandy loam that has slopes of 4 to 15 percent. The Smedley very gravelly sandy loam is on the tops of alluvial fans, and the Smedley stony sandy loam is on side slopes of alluvial fans.

Included in this unit are about 6 percent soils that are similar to Biddleman soils and are on side slopes (range site 27-15), 5 percent Maipais soils on inset alluvial fans (range site 27-18), and 4 percent Haar soils on eroded side slopes (range site 26-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The very gravelly Smedley soil is shallow and well drained. It formed in alluvium derived from mixed igneous rocks. Typically, the surface layer is light brownish gray very gravelly sandy loam about 2 inches thick. The subsoil is brown grave by clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly demented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

The stony Smedley soil is shallow and well drained it formed in alluvium derived from mixed igneous rocks. Typically, the surface layer is light brownish gray stony sandy loam about 2 inches thick. The subsoil is brown gravelly clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of this unit is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and widdle habitat

The potential plant community on this unit is mainly galleta, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly galleta, Bailey greasewood, and Indian neegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the tow average annual precipitation.

This unit is limited for roads because of the shallow depth to the hardpan and low soil strength. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass V is, noningated, and in range site 27-15.

1014—Smedley association, moderately steep. This map unit is on dissected allowal fans. Slope is 4 to 30

percent Elevation is 5,200 to 6,400 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

This unit is 50 percent Smedley cobbly sandy loam that has slopes of 15 to 30 percent and 35 percent Smedley very gravelly sandy loam that has slopes of 4 to 15 percent. The Smedley cobbly sandy loam is on dissected side slopes, and the Smedley very gravelly sandy loam is on the tops of alluvial fans.

Included in this unit are about 8 percent soits that are similar to Bidd eman soits and are on side slopes (range site 27-15). 5 percent Haar soils on eroded side slopes (range site 26-11), and 2 percent Malpais soils on inset a luvial fans (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Smed ey cobbly sandy loam is shallow and well drained. It formed in alluvium derived from mixed igneous rocks. Typically, the surface layer is light brownish gray cobbly sandy pain about 2 inches thick. The subsoil is brown gravelly clay loam about 16 inches thick. The upper 26 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Smedley cobbly sandy loam is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 noties. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Smed by very gravelly sandy loam is shallow and well drained it formed in a luvium derived from mixed igneous rocks. Typically, the surface layer is light brownshigray very gravelly sandy loam about 2 inches thick. The subsoil is brown gravelly clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Smedley very gravelly sandy loam a slow Available water capacity is very low Effective rooting depth is 14 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is a ght.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on this unit is mainly galleta, Balley greasewood and Indian ricegrass. The present vegetation in most areas is mainly gaseta, Bailey greasewood and shadscale. The production of forage is mited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main emitation is the low average annual precipitation.

This unit is limited for roads because of the shallow depth to the hardpan, low soil strength, and slope in some areas of the unit. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base, an adequate wearing surface, and adequate surface drainage. Cutting and filling are reduced by building roads in the less sloping areas of the unit Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Smedley cobbly sandy loam is in capability subclass VIIe, noningated, and in range site 27-16. The Smedley very gravelly sandy loam is in capability subclass VIIs, noningated, and in range site 27-15.

1021—Springmeyer sandy loam, 0 to 4 percent slopes. This very deep, well drained sor is on at uvia fans. It formed in alluvium derived from various kinds of rock, Elevation is 6,500 to 7,500 feet. The average annual precipitation is about 11 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

Typically, the surface layer is grayish brown sandy loam about 10 inches thick. The subsoil is brown sandy clay loam about 24 inches thick. The substratum to a depth of 60 inches or more is yellowish brown sandy loam.

included in this unit are about 10 percent Shree soils on the upper part of all uvial fans (range site 26-10) and 5 percent later soils on mountain toe slopes (range site 26-5). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Springmeyer soil is moderately slow Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of so blowing is slight.

This unit is used for livestock grazing and wild fe habital

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush and bott ebrush squirreltad. The production of forage is limited by the moderate average annual precipitation. The suitability of this unit for rangeland seeding is fair. The main limitation is the moderate average annual precipitation.

Trafficability of roads on this unit can be improved by providing a stable base and an adequate wearing surface. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclass Vic, noningated, and in range site 26.10

1031—Burnborough-Glean association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation

is 7 600 to 9.000 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 60 to 80 days.

This unit is 55 percent Burnborough very stony loam that has slopes of 30 to 50 percent and 35 percent. Glean stony loam that has slopes of 15 to 50 percent. The Burnborough soil is on convex side slopes, and the Glean soil is on collevial and concave side slopes.

ncluded in this unit are about 5 percent Rock outcrop on ridges and 5 percent Rubble land below the areas of Rock outcrop, Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Burnborough soil is very deep and well drained. It formed in residuum and colluvium derived dominantly from volcanic rock. Typically, the surface tayer is dark grayish brown and brown very stony loam about 10 inches thick. The subsoil is brown very gravelly clay loam about 32 inches thick. The substratum to a depth of 60 inches or more is pare brown very gravelly loam.

Permeability of the Burnborough soil is moderate Avaliable water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil

blowing is 8 ght.

The Glean soil is deep and very deep and is well drained it formed in colluvium derived from various kinds of rock. Typically, the surface layer is brown stony toam about 14 inches thick. The underlying material to a depth of 51 inches is pale brown very cobbly loam. Bedrock is at a depth of 51 inches. Depth to bedrock ranges from 40 to 70 inches.

Permeability of the Glean soil is moderately rapid Available water capacity is moderate. Effective rooting depth is 40 to 70 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat

The potential plant community on the Burnborough soil is mainly western needlegrass, mountain brome, and mountain big sagebrush. The present vegetation in most areas is mainly mountain big sagebrush, green ephedra, and mountain brome. The production of forage is fimited by cold soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main kmitation is steepness of slope.

The potential plant community on the Glean soil is mainly western needlegrass, mountain brome, and mountain big sagebrush. The present vegetation in most areas is mainly mountain big sagebrush, snowberry, and hevada bluegrass. The production of forage is limited by cold soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope.

Steepness of slope limits access and movement of investock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Cold soil temperatures limit plant growth. Therefore, grazing should be delayed until the soils in the unit have warmed up and the plants have achieved sufficient growth.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stab. zing

areas that have been disturbed

This map unit is in capability subclass Villa noningated. The Burnborough soi is in range site 26-5, and the Glean soil is in range site 26-38.

1041—Whichman-later-Rock outcrop association. This map unit is on mountains. Slope is 30 to 50 percent. Elevation is 6,500 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 40 percent Whichman cobbly loamy sand 30 to 50 percent slopes, 30 percent sler very stony sandy loam, 30 to 50 percent slopes, and 15 percent Rock outcrop. The Whichman soil is on concave side slopes. The later soil is on convex side slopes, and Rock

outcrop is on ridges and rims.

included in this unit are about 10 percent Hy oc soils on rounded ridges (pinyon-juniper woodland) and 5 percent Veta soils in drainageways and on inset alluvia fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another

The Whichman soil is deep and well drained it formed in colluvium derived dominantly from andesite. Typically 40 to 80 percent of the surface is covered with stones, cobbles, and pebbles. The surface layer is brown cobbly loamy sand about 15 inches thick. The subsoil is brown extremely stony sandy loam about 10 inches thick. The upper 8 inches of the substratum is pale brown extremely stony sandy loam, and the lower part to a depth of 56 inches is very pale brown very cobbly sandy loam. Hard bedrock is at a depth of 56 inches. Depth to bedrock ranges from 40 to 60 inches or more.

Permeability of the Whichman son is moderately rapid Available water capacity is low. Effective rooting depth is 40 to 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil

blowing is slight.

The later soil is moderately deep and we'll drained it formed in residuum derived dominantly from andesite. Typically, 40 to 80 percent of the surface is covered with stones, cobbles, and pebbles. The surface layer is grayish brown very stony sandy loam about 17 inches thick. The subsoil is light yellowish brown very stony.

sandy clay loam about 21 inches thick. Hard bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of the later soil is moderately slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of voicanic bedrock

This unit is used for livestock grazing and wildele habitat

The potential plant community on the Whichman soil is mainly Thurber needlegrass, Wyoming big sagebrush, and basin wildrye. The potential plant community on the ster soil is mainly mountain big sagebrush, mountain brome, and western need egrass. The present vegetation in most areas of this unit is mainly singleleaf pinyon and Utah juniper. The production of forage is kmited by the ow available water capacity. The suitability of the unit for rangeland seeding is very poor. The main limitations are the steepness of slope and rock fragments on the surface.

Steepness of slope mits access and movement of trestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the fess sloping areas. Because of the density of the pinyon and juniper trees in most areas, this unit can be managed for wood products. The reestab shment of the rangerand plant community in some areas may be difficult.

This unit is limited for roads because of steepness of stope and stones and cobbles in the soil. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. Cutting and I ling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Whichman soil is in capability subclass VIIe, noningated, and in range site 26-10. The later soil is in capability subclass VIIs, noningated, and in range site 26-5.

1051—Zyzzi very gravetly sandy loam, 8 to 30 percent alopes. This very shallow well drained soil is on hills. It formed in residuum derived dominantly from gran tic bedrock. Elevation is 6,000 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown very gravelly sandy oam about 2 inches thick. The subsoil is brown extremely grave by sandy clay loam about 4 inches thick.

Weathered bedrock is at a depth of 5 inches. Depth to bedrock ranges from 4 to 10 inches.

tholuded in this unit are about 10 percent Rock outcrop on higgs and rims and 5 percent Veta soils in dramageways and on inset alluvial fans (range site 26-24) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Zyzzi soil is moderately slow Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soblowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly low sagebrush, galleta, and Thurber need egrass. The present vegetation in most areas is mainly low sagebrush, galleta, and indian neegrass. The production of forage is limited by the very low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity. Loss of the surface layer results in a severe decrease in productivity and in the potential of the Zyzzi soil to produce plants suitable for grazing.

The Zyzzi soil is limited for roads because of slope Cutting and fitting are reduced by building roads in the less sloping areas of the unit. Power equipment is needed to make cuts in the upper part of the bedrock. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass V is, noningated, and in range site 27-49

1072—Hawsley sand, 2 to 8 percent slopes. This very deep, somewhat excessively drained soil is on a uvial fans and lake terraces. It formed in alluvium and water-worked equan deposits derived from various kinds of rock. Elevation is 4,100 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown and light brownish gray sand.

Included in this unit is about 10 percent Patha soils on the slightly higher lying take terraces (range sits 27-9)

Permeability of this Hawsley soil is very rapid Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wildlife habital

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, and Bailey greasewood. The present vegetation in most areas is mainly indian ricegrass and Bailey greasewood. The production of forage is imited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Roads generally can easily be constructed and maintained on this unit. During prolonged dry periods, however roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, noninigated, and in range site 27-9

1073—Hawsley-Gamgee association. This map unit is on activity fans and lake terraces. Slope is 2 to 15 percent. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 55 percent Hawsley sand and 30 percent Gamgee stony sandy loam. The Hawsley soil is on lake terraces, and the Gamgee soil is on alluvial fans.

ncluded in this unit are about 10 percent Patna soils on reworked plains (range site 27-8) and 5 percent. Theories is on isolated hills (range site 27-19). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Hawsiey soil is very deep and somewhat excessively drained. It formed in a fuvium derived from various kinds of rock, Typically, the surface layer is light brown shighly sand about 8 inches thick. The underlying material to a depth of 80 inches or more is pale brown sand and fine sand.

Permeability of the Hawsley soil is very rapid. Available water capacity is low. Effective rooting depth is 60 nches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Gamgee so is very deep and well drained. It formed in alluvium derived from voicanic rock. Typically, the surface layer is light brownish gray stony sandy loam about 4 inches thick. The subsoil is yellowish brown clay loam about 13 inches thick. The substratum to a depth of 60 inches or more is pale brown sandy loam.

Permeability of the Gamgee soil is slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly sail- and alkali-affected in the subsoil and substratum.

This unit is used for ivestock grazing and wildlife habitat.

The potential plant community on the Hawsiey sor is mainly Indian ricegrass and fourwing saltbush. The present vegetation in most areas is mainly Indian ricegrass and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Gamges soi is mainly Galleta, Indian neegrass, and Bailey greasewood. The present vegetation in most areas is mainly galleta, shadscale, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for range and seeding is very poor. The main limitation is the low average annual precipitation.

Cutting and filling can be reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stab lizing areas that have been disturbed. When the Hawsley so is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass V is nonirrigated. The Hawsley soil is in range site 27-9 and the Gamgee soil is in range site 27-15

1074—Hawsley loamy fine sand, silty substratum, 0 to 2 percent slopes. This very deep, somewhat excessively drained soil is on take terraces. It formed in wind-worked abuvium derived from various kinds of rock Elevation is 4,150 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is very pale brown damy fine sand about 8 inches thick. The upper 42 inches of the underlying material is pale brown sand and fine sand, and the lower part to a depth of 60 inches or more is light gray slit loam.

Included in this unit are about 8 percent Patna soils in slightly higher lying areas (range site 27-9) and 2 percent Playas in depressional areas. Included areas make up about 10 percent of the total acreage

Permeability of this Hawsley soil is very rapid.

Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is strongly salt, and alkali-affected in the lower part of the underlying material.

This unit is used mainly for livestock grazing and homesite development, it is also used for imgated cultivated crops

The potential plant community on this unit is mainly indian ricegrass and fourwing saltbush. The present vegetation in most areas is mainly indian neegrass and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main mitation is the low average annual precipitation. Investock grazing should be managed to protect the unit from blowing and drifting sand.

If this unit is used for irrigated cultivated crops, the main limitations are low available water capacity and very rapid permeability. The very rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Because the soil is droughty, applications of irrigation water should be light and frequent. Maintaining crop residue on or near the surface reduces runoff, reduces soil blowing, and he ps to maintain soil tilth and organic matter content.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is the very rapid permeability. Special design may be needed to avoid polluting ground water.

Hoads generally can easily be constructed and maintained on this unit. When the soil is dry, however, roads are difficult to maintain because of the presence of cose sand. This results in poor traction and an increased risk of soil blowing

This map unit is in capability subclasses IVs, irrigated, and VI s, noningated. It is in range site 27-9.

1075—Hawaley-Playas complex. This map unit is on ake terraces. Slope is 0 to 2 percent. Elevation is 4,150 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Hawsley loamy line sand, silty substratum, and 30 percent Playas. The Hawsley soil is on hummocky terraces, and the Playas are in depressional areas. The components of this unit are so intricately interming ed that it was not practical to map them separately at the scale used.

ncluded in this unit is about 10 percent Patna soils on ake plains

The Hawsley soil is very deep and somewhat excessively drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is very paie brown loamy fine sand about 8 inches thick. The upper 42 inches of the underlying material is pale brown sand and fine sand, and the lower part to a depth of 60 inches or more is light gray silt loam.

Permeability of the Hawsley soil is very rapid. Available water capacity is low. Effective rooting depth is 60 nones or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is strongly salt- and alkali-affected in the lower part of the underlying material.

Playas consist of barren, nearly level areas that are somewhat ower lying than surrounding areas. The

surface layer is moderately fine textured or fine textured Playas are subject to frequent, brief to long periods of poriding after heavy rains.

This unit is used mainly for livestock grazing. It is also

used for homesite development

The potential plant community on this unit is mainly Indian ricegrass and fourwing satitbush. The present vegetation in most areas is mainly Indian ricegrass and Bailey greasewood. The production of forage is mitted by the low average annual precipitation. The suitability of this unit for range and seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

The Hawsley soil is well suited to the construction of dwellings. If the areas of Playas are used for homesite development, the main limitations are the hazard of ponding or flooding and the potential for frost heaving

The main limitation for septic tank absorption fields is the very rapid permeability. Special design may be needed to avoid polluting ground water

Roads generally can easily be constructed and maintained on this unit. When the soil is dry however, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, noningated. The Hawsley soil is in range site 27-9

1081—Stucky extremely cobbly sandy loam, 8 to 15 percent slopes. This very deep, well drained so is on alluvial fairs. It formed in alluvium derived from granitic rock. Elevation is 5 000 to 6,000 feet. The average annual precipitation is about 9 inches the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray extremely cobbly sandy loam about 6 inches thick. The subsoil is yellowish brown extremely cobbly sandy clay loam about 14 inches thick. The next 15 inches is pale brown very story sandy loam. Below this to a depth of 60 inches or more is stratified, brown very story clay loam, yellowish brown extremely story loam, and light yellowish brown extremely cobbly loam.

Included in this unit are about 10 percent Haybourne sofs on inset alluvial fans (range site 26-16) and 5 percent Heno soils on terrace remnants (range site 26-25) Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Studies soil is moderately slow Available water capacity is low. Effective rooting depth is 60 inches or more. Buinoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wild fe

The potential plant community on this unit is mainly ow sagebrush and desert needlegrass. The present vegetation in most areas is mainly low sagebrush and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for range and seeding is poor. The main limitations are the low average annual precipitation and low available water capacity.

This unit is limited for roads because of stones and cobbles in the soil. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintained cost.

This unit is in capability subclass VIs, nonimgated, and in range site 26-47.

1082—Stucky association. This map unit is on dissected a luvia fans. Slope is 8 to 30 percent Elevation is 5,300 to 5,500 feet. The average annual predictation is about 6 inches the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 55 percent Stucky very cobbly toam, 8 to 15 percent slopes, and 30 percent Stucky very cobbly loam, 15 to 30 percent slopes. The Stucky soil, 8 to 15 percent slopes, is on the tops of aduvial fans, and the Stucky soil, 15 to 30 percent slopes, is on the dissected side slopes.

Included in this unit are about 10 percent Reno soils on terrace remnants (range site 26-25) and 5 percent Haybourne soils on inset alluvial fans (range site 26-16) included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Stucky so is are very deep and well drained. They formed in a unium derived dominantly from granitic rock. Typically the surface layer is light brownish gray very cobbly dominantly finches thick. The subsoil is yellowish brown extremely cobbly sandy day loam about 14 inches thick. The substratum to a depth of 60 inches or more is stratified extremely cobbly sandy loam to very story day loam.

Permeability of the Stucky soils is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit a used for livestock grazing and wildlife heb tot

The potential and present plant community on this unit is mainly low sagebrush and desert needlegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

This unit is mited for roads because of stones and cobbies in the soils and steepness of slopes. Unless an adequate wearing surface is maintained, stones and

cobbles in the soils create road hazards and increase maintenance cost. Cutting and filling are reduced by building roads in the less stoping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass V is, nonirrigated, and in range site 26-47

1083—Stucky-Hunewill-Veta association. This map unit is on alluvial fans and terraces. Slope is 2 to 30 percent. Elevation is 5,000 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Stucky extremely copply came that has slopes of 2 to 8 percent, 20 percent Hunewill story loam that has slopes of 15 to 30 percent, and 20 percent Veta very gravelly sandy loam that has slopes of 2 to 4 percent. The Stucky soil is on alluvial fair remnants and the tops of terraces the Hunewill soil is on dissected side slopes, and the Veta soil is in drainageways, and on inset alluvial fans.

included in this unit is about 10 percent Fulstone so sion alluvial fan remnants (range site 26-25)

The Stucky soil is very deep and weil drained, it formed in alluvium derived dominantly from grantle rock. Typically, the surface layer is light brown shigray extremely cobbly loam about 6 inches thick. The subsoilis yellowish brown extremely cobbly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is stratified extremely cobbly sandy loam to very story clay loam.

Permeability of the Stucky soil is moderately slow Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Hunewill soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is light brownish gray stony loam about 3 inches thick. The subsoil is brown very gravelly clay loam about 10 inches thick. The next layer is a buried subsoil of brown very gravelly sandy loam about 5 inches thick. The substratum to a depth of 60 inches or more is grayish brown extremely gravelly sand.

Permeability of the Hunewill soil is moderately slow Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Veta soil is very deep and we i drained it formed in alluvium derived from various kinds of rock. Typically, the surface layer is light brownsh gray very gravelly sandy loam about 6 inches thick. The subsoil is pale brown very gravelly loam about 12 inches thick. The

substratum to a depth of 60 inches or more is stratified extremely gravely loamly sand to very gravelly loam.

Permeability of the Veta soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the bazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habital

The potential plant community on the Stucky soil is mainly tow sagebrush and desert needlegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is poor. The main limitation is the low average annual precipitation.

The potential plant community on the Hunewill soil is mainly Wyoming big sagebrush. Thurber needlegrass, and indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreitail. The production of lorage is limited by the low average annual precipitation and low available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitations are the low average annual precipitation and low available water capacity.

The potential plant community on the Veta soil is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, spiny hopsage, and Doug as rabbitbrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitations are the low average annual precipitation and low available water capacity.

The Stucky sort is limited for roads because of stones and cobbles in the soil. Unless an adequate wearing surface is maintained, the stones and cobbles in the soil create road hazards and increase maintenance cost. The Hunewi soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the ess sloping areas. Local roads and streets on the Veta soil may require a special base to avoid trost-heave damage. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Stucky son is in capability subclass VIIs, nonimigated, and in range site 26-47. The Hunewill soil is in capability subclass VIIs, nonimigated, and in range site 26-16. The Veta soil is in capability subclass VIIs, nonimigated, and in range site 26-24.

1091—Glean Variant-Hartig Variant-Rubble land association. This map unit is on mountains. Slope is 30 to 75 percent. Elevation is 8,000 to 10,500 feet. The average annual precipitation is about 14 inches, the

average annual air temperature is about 43 degrees F and the average frost-free period is 70 to 90 days

This unit is 45 percent Glean Variant grave by loamy sand that has slopes of 50 to 75 percent, 30 percent Hartig Variant extremely gravelly coarse sand that has slopes of 30 to 50 percent, and 15 percent Rubble land. The Glean Variant soil is on south- and southwest facing side slopes, the Hartig Variant soil is on north- and east-facing side slopes, and the Rubble land is on the steeper slopes.

Included in this unit are about 5 percent Rock outcrop on ridges and nims and 5 percent deep, cold so is that are in north-facing snow pockets and support whitebark pine. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another

The Glean Variant soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from granitic bedrock. Typically the surface layer is dark grayish brown and brown gravelly loamy sand about 11 inches thick. The underlying materia to a depth of 31 inches is brown gravelly sand. Weathered granitic rock is at a depth of 31 inches. Depth to weathered bedrock ranges from 20 to 40 inches.

Permeability of the Grean Variant soil is very rapid. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Hartig Variant soil is shallow and well drained. It formed in residuum derived dominantiy from gran Lobedrock. Typically, the surface rayer is dark grayish brown extremely graveity coarse sand about 2 nones thick. The next layer averages dark grayish brown extremely gravelly sandy loam and is about 14 nones thick. Granitic rock is at a depth of 16 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Hartig Variant soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rubble land consists of barren areas of cobbles, stones, and boulders. It supports little if any vegetation except lichens.

This unit is used mainly for wildlife habitat, it is also used for livestock grazing.

The potential and present plant community on the Glean Variant soil is mainly curleaf mountainmahogany. The potential plant community on the Hartig Variant soil is mainly mountain big sagebrush and western needlegrass. The present vegetation in most areas is mainly mountain big sagebrush and green ephedra. The production of forage on these soils is mitted by the very low available water capacity and cold soil temperatures. The suitability of the soils for range and seeding is very

poor. The main limitations are steepness of slope and very low available water capacity.

Cold so: temperatures limit prant growth. Grazing therefore should be delayed until the soils have warmed up and the plants have achieved sufficient growth. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect the so is from excessive erosion and to prevent overgrazing in the less sloping areas.

The Glean Variant soil is limited for roads because of slope. The Hartig Variant soil is limited for roads because of slope and shallow depth to bedrock. Because of the bedrock deep cuts should be avoided on the Hartig Variant soil. Gutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stablizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Glean Variant soil is in range site 26-9, and the Hartig Variant soil is in range site 26-38.

1103—Mirkwood-Nemico association. This map unit is on his and low mountains. Slope is 0 to 50 percent. Elevation is 4 400 to 6,500 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Mirkwood very cobbly fine sandy loam that has slopes of 15 to 50 percent and 25 percent Nemico very stony sandy toam that has slopes of 0 to 15 percent. The Mirkwood soil is on hillsides and mountainsides, and the Nemico soil is on plateaus and broad ridges.

Included in this unit are about 6 percent Old Camp soils on north-facing side slopes (range site 26-22), 5 percent Rock outcrop on ridges and rims, and 4 percent Maipais soils in drainageways and on short altuviations (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Mirkwood soil is very shallow and well drained. If formed in residuum derived dominantly from basic gneous rock. Typically, the surface layer is light brownish gray very cobbly fine sandy loam about 7 inches thick. The subsoil is yellowish brown very gravelly clay foam about 7 inches thick. Lime-coated bedrock is at a depth of 14 inches. Depth to bedrock ranges from 7 to 14 inches.

Permeability of the Mirkwood soil is moderately slow. Available water capacity is very low. Effective rooting depth is 7 to 14 mohes. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Nemico soit is shallow and well drained. It formed a residuum derived dominantly from basic igneous rock.

Typically, the surface layer is mainly light gray gravelly sandy loam about 6 inches thick. The subsoil is ye owish brown gravelly clay loam and gravelly clay about 12 inches thick. The next layer is a hardpan about 3 inches thick. Bedrock is at a depth of 21 inches. Depth to the hardpan ranges from 10 to 20 inches. Depth to bedrock ranges from 11 to 25 inches.

Permeability of the Nemico soil is very slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali affected in the subsoil.

This unit is used for livestock grazing and wildlife habitat

The potential and present plant community on the Mirkwood soil is mainly desert needlegrass and shadscale. The potential and present plant community on the Nemico soil is mainly galieta and Balley greasewood. The production of forage on this unit is limited by the low average annual precipitation. The suitability of the unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope timits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas.

This unit is limited for roads because of shallow depth to bedrock and slope. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VI s, noningated. The Mirkwood soil is in range site 27-17, and the Nemico soil is in range site 27-15.

1110—Surgem-Olac-Cagle association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 5,000 to 6,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 85 to 110 days.

This unit is 45 percent Surgem extremely stony sandy loam that has slopes of 30 to 50 percent, 25 percent. Olac very stony loam that has slopes of 30 to 50 percent, and 15 percent Cagle very stony loam that has slopes of 15 to 50 percent. The Surgem soil is on southand west-facing side slopes, the Olac soil is on the lower part of south-land east-facing side slopes, and the Cagle soil is on the north-facing side slopes.

Included in this unit are about 6 percent Veta soils that are flooded and are in drainageways (range site 26-34), 5 percent Rock outcrop on ridges and rims, and 4 percent Rubble land below the areas of Rock outcrop included areas make up about 15 percent of the total

acreage. The percentage varies from one area to another

The Surgem soil is moderately deep and well drained, the formed in residuum derived dominantly from granitic rock. Typically, the surface rayer is light brownish gray and brown extremely stony sandy roam about 6 inches thick. The subsoil is mainly brown extremely gravelly clay about 16 inches thick. Hard bedrock is at a depth of 22 nones. Depth to bedrock ranges from 20 to 30 inches.

Permeability of the Surgem soil is slow. Available water capacity is low. Effective rooting depth is 20 to 30 nones. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Orac soil is very shallow and well drained. It formed in residual derived dominantly from rhyolite Typically the surface layer is grayish brown very stony foam about 4 inches thick. The subsoil is yellowish brown extremely gravelry loam about 10 inches thick. Hard bedrock is at a depth of 14 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Cagle soil is moderately deep and well drained. It formed in collustion derived dominantly from andesite. Typically the surface layer is grayish brown very stony loam about 2 nones thick. The subsoil is brown gravelly clay about 28 nones thick. Weathered bedrock is at a depth of 30 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeab ity of the Cagle sort is slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for fivestock grazing and wildlife habitat

The potential plant community on the Surgem soil is mainly low sagebrush. Thurber needlegrass, pine bluegrass, and antelope bitterbrush. The present vegetation in most areas is mainly low sagebrush and Thurber needlegrass. Pinyon and juniper have invaded The production of forage is limited by the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope and stones on the surface.

The potential plant community on the Olac soil is mainly low sagebrush and Thurber needlegrass. The present vegetation in most areas is mainly low sagebrush bottlebrush squire tail, and some pinyon. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope and the very low available water capacity.

The stones and cobbies on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less stoping areas of the Cagle soil.

The potential plant community on the Cagle soil is mainly singleleaf pinyon and Utah juniper. The present vegetation in most areas is mainly pinyon and juniper with an understory of Wyoming big sagebrush and pine bluegrass. This soil can produce 4 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are slope and the very stony surface layer, which interfere with the use of equipment.

The Surgem soil is limited for roads because of slope and stones and cobbies in the soil. Unless an adequate wearing surface is maintained the stones and cobbies in the soil create road hazards and increase maintenance cost. The Olac soil is limited for roads because of shallow depth to bedrock and slope. Roads should be designed to minimize outs because of the limited depth to bedrock. The Cagle soil is limited for roads because of slope and shrink-swell potential. Roads should be provided with a stable base and an adequate wearing surface.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stab. izing areas that have been disturbed. When building roads on the unit, construction and maintenance cost can be reduced if areas of the clayey Cagle soil are avoided

This map unit is in capability subclass Vils nonimgated. The Surgem soil is in range site 26-23, and the Olac soil is in range site 26-25.

1121—Duco-Nosrac association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 5,400 to 7,200 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 85 to 105 days.

This unit is 45 percent Duco very cobbly fine sandy loam that has slopes of 15 to 50 percent and 40 percent Nosrac very stony loam that has slopes of 30 to 50 percent. The Duco soil is on south-facing side slopes and on ridges, and the Nosrac soil is on north-facing side slopes.

Included in this unit are about 8 percent Rock outcrop on ridges, 4 percent sharlow sors on the upper part of south-facing side slopes (range site 26-28), and 3 percent Whichman soils on concave side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Duco soil is shallow and well drained, it formed in residuum derived dominantly from andesite. Typically,

the surface layer is grayish brown very cobbly fine sandy loam about 4 inches thick. The subsoil is brown very graveily diay loam about 15 inches thick. Hard bedrock is at a depth of 19 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Duco soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Nosrac soil is very deep and well drained. It formed in residuum and co-dvium derived dominantly from andesite. Typically, the surface layer is grayish brown very stony dam about 12 inches thick. The upper 33 inches of the subsoil is brown very gravelly clay loam, and the lower 15 inches is pale brown very gravelly loam.

Permeability of the Nosrac soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Burioff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for livestock grazing, wildlife habitat,

and wood products

The potential plant community on the Duco soil is mainly singleteaf pinyon and otah juniper. The present vegetation is mainly pinyon and juniper with an understory of Sandberg bluegrass and antelope bit erbrush. This soil can produce 4 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. Stones and cobbies on the surface and steepness of slope interfere with the use of equipment.

The potential community on the Nosrac soil is mainly western need egrass and mountain big sagebrush. The present vegetation is mainly singleleaf puryon and Utah juniper. The production of forage is limited by the moderate available water capacity. The suitability of this soil for rangeland seeding is very poor. The main

mitation is steepness of slope. Livestock grazing should be managed to protect the soil from excessive erosion and to prevent overgrazing in the less sloping areas. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

The Duco soil is limited for roads because of shallow depth to bedrock slope, and stones and cobbles in the soil. Roads should be designed to minimize cuts because of the limited depth to bedrock. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. The Nosrac soil is limited for road location because of slope. Cutting and fifting are reduced by building roads in the less sloping areas of the unit. Poads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIe, nonimigated. The Nosrac soil is in range site 26-10.

1131—Gamgee gravelly sand, 2 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from volcanic rock Elevation is 4,600 to 5,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost free period is 100 to 120 days.

Typically, the surface layer is light brownish gray gravelly sand about 4 inches thick. The upper 13 inches of the subsoil is dark yellowish brown and ye lowish brown clay loam, and the lower 6 inches is light yellowish brown loam. The substratum to a depth of 60 inches or more is pale brown sandy loam.

Included in this unit are about 10 percent nongravery soils on toe slopes of alluvial fans (range site 27-18) and 5 percent Hawsley soils on stabilized sand dunes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Gamgee soil is slow. Available water capacity is moderate. Effective rooting depth is 50 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the subsoil and substratum.

This unit is used for livestock grazing and wild its habitat

The potential plant community on this unit is mainly galleta, Indian neegrass, and Bailey greasewood. The present vegetation in most areas is mainly galleta Bailey greasewood, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass V is nonringated, and in range site 27-15.

1141—Old Camp-Mirkwood-Nemico association.
This map unit is on hills and mountains. Slope is 4 to 75 percent. Elevation is 4,400 to 8,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 49 degrees F and the average frost-free period is 100 to 120 days.

This unit is 45 percent Old Camp extremely stony loam that has slopes of 30 to 50 percent, 25 percent. Mirkwood extremely stony loam that has slopes of 30 to 75 percent, and 15 percent Nemico very stony sandy loam that has slopes of 4 to 30 percent. The Old Camp soil is on north, and east-facing side slopes, the

Mirkwood soil is on south- and west facing side slopes, and the Nemico soil is on plateaus and broad ridges.

included in this unit are about 8 percent Rock outcrop on ridges and rims, 4 percent Veta soils on inset alluvial fans (range site 26-16), and 3 percent Hawsley soils on the eeward side of ravines (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Old Camp soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer averages grayish brown extremely stony loam and is about 4 nones thick. The subsoil averages pale brown very cobbly clay loam and is about 10 inches thick. Limecoated bedrock is at a depth of 14 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing

is sight

The Mirkwood soil is very shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray extremely stony loam about 4 inches thick. The subsoil is yellowish brown very gravelly clay loam about 10 inches thick. Hard bedrock is at a depth of 14 inches. Depth to bedrock ranges from 7 to 14 inches.

Permeability of the Mirkwood soil is moderately slow Available water capacity is very low. Effective rooting depth is 7 to 14 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is

slight

The Nemico soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface tayer is light brownish gray very stony sandy loam about 6 inches thick. The subsod is yellowish brown gravelly clay loam and gravelly clay about 12 inches thick. The next layer is a hardpan about 3 inches thick. Bedrock is at a depth of 21 inches. Depth to the hardpan ranges from 10 to 20 inches. Depth to bedrock ranges from 11 to 25 inches.

Permeability of the Nemico soil is very slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly saft- and alkel-affected in the subsoil.

This unit is used for livestock grazing and wild fe

hab tat

The potential plant comunity on the Old Camp soil is mainly Wyoming big sagebrush. Nevada ephedra, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is

very poor. The main limitations are the very low available water capacity and restricted rooting depth.

The potential and present plant community on the Mirkwood soil is mainly desert need egrass and shadscale. The potential and present plant community on the Nemico soil is mainly galleta and Balley greasewood. The production of forage is limited by the low average annual precipitation. The suitability of these soils for rangetand seeding is very poor. The main limitation is the low average annual precipitation.

The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas of the fyemico soil.

This unit is limited for roads because of shallow depth to bedrock and slope and stones and cobbies in the Old Camp soil. Unless an adequate wearing surface is maintained, stones and cobbles in the Old Camp soil create road hazards and increase maintenance cost Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabiling areas that have been disturbed. Roads should be designed to minimize cuts because of the limited depth to bedrock.

The Old Camp soil is in capability subclass VIIe, nonimigated, and in range site 27-7. The Mirkwood soil is in capability subclass VIIs, nonimigated, and in range site 27-17. The Nemico soil is in capability subclass VIIs, nonimigated, and in range site 27-15.

1142—Old Camp-Holbrook Variant association.
This map unit is on hels and mountains. Slope is 15 to 50 percent. Elevation is 5,000 to 6,200 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 65 percent Old Camp very stony dam that has slopes of 15 to 30 percent and 20 percent Holbrook Variant very stony fine sandy loam that has slopes of 30 to 50 percent. The Old Camp soil is on the lower lying, more rounded side slopes, and the Holbrook Variant soil is on the higher lying side slopes.

Included in this unit are about 8 percent O ac so s on ridges and convex slopes (range site 26-25) and 7 percent Rock outcrop on ridges and rims. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Old Camp soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very stony loam about 4 inches thick. The subsoil is pale brown very cobbly clay loam about 10

nches thick Lime-coated bedrock is at a depth of 14 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil

blowing is sught.

The Holbrook Variant soil is moderately deep and well drained it formed in cor usum derived dominantly from andesite and basalt. Typically, the surface layer is pale brown very stony fine sandy oam about 9 inches thick. The subsoil is pale brown very cobbly sandy loam about 11 inches thick. The substratum is pale brown very grave by fine sandy loam about 15 inches thick. Hard bedrock is at a depth of 35 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeablity of the Holbrook Variant soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 20 to 40 inches, Runoff is rapid, and the hazard of water erosion is high. The hazard of sc.

blowing is a ght.

This unit is used for livestock grazing and wildlife

habitat

The potential plant community on the Old Camp soil is mainly Wyoming big sagebrush, desert needlegrass, and bottlebrush squirreltail. The production of forage is mited by the very ow available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very ow available water capacity and restricted.

rooting depth

The potential plant community on the Holbrook Variant soil is mainly Wyoming big sagebrush and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreitail. The production of forage is limited by the very low available water capacity. The suitability of this soil for range and seeding is very poor. The main mitations are slope, the very low available water capacity, and rock fragments on the surface.

Steepness of slope limits access and movement of livestock, Livestock grazing should be managed to protect this unit from excessive erosion and to prevent

overgrazing in the less sloping areas.

The O'd Camp sor is limited for roads because of shallow depth to bedrock, slope, and stones and cobbles in the soir. Roads should be designed to minimize cuts because of the mited depth to bedrock. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. The Holbrook Variant soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Old Camp soil is in capability subctass Vile and in range site 26-22. The Holbrook Variant soil is in capability subclass Vils and in range site 26-10.

1143—Old Camp-Reno Variant-Hyloc association. This map unit is on hills and mountains. Slope is 4 to 50 percent. Elevation is 6,500 to 7,500 left. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 45 percent Old Camp extremely stony sandy loam that has slopes of 4 to 15 percent 25 percent Heno Variant very stony sandy loam that has slopes of 30 to 50 percent, and 20 percent Hyloc gravelly loam that has slopes of 15 to 30 percent. The Old Camp soil is on the upper side slopes and ridges, the Reno Variant soil is on south- and west facing side slopes, and the Hyloc soil is on north- and east facing side slopes.

Included in this unit are about 6 percent Rock outcrop on ridges and 4 percent Veta soils on inset alluvial tans (range site 26-24). Included areas make up about 10

percent of the total acreage

The Old Camp soil is shalow and well drained it formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray extremely story sandy dam about 4 inches thick. The subsoil is pale brown very cobbly dray loam about 10 inches thick. Lime-coated bedrock is at a depth of 14 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Old Camp soi is moderatory slow Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of so

blowing is slight

The Reno Variant soil is shalow and well drained it formed in colluvium derived dominantly from andesite. Typically, the surface layer averages light brownish gray very stony sandy loam and is about 11 inches thick. The subsoil is pare brown loam about 7 inches thick. A silica-cemented hardpan is at a depth of 18 inches. Hard bedrock is at a depth of 24 inches. Depth to the hardpan ranges from 15 to 20 inches. Depth to bedrock ranges from 20 to 36 inches.

Permeability of the Reno Variant soil is moderate Available water capacity is very low. Effective rooting depth is 15 to 20 inches, Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Hyloc soil is shallow and well drained. It formed in residuum derived dominantly from andesite and basait. Typically, the surface layer is grayish brown gravelly loam about 3 inches thick. The subsoil is brown clay about 15 inches thick. Weathered bedrock is at a depth of 18 inches. Hard bedrock is at a depth of 24 inches.

Depth to weathered bedrock ranges from 14 to 20 inches

Permeability of the Hyloc soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat

The potent all plant community on the Old Camp soil is mainly Wyoming big sagebrush, desert needlegrass, green aphedra and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bott ebrush squirreltail. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and restricted rooting depth.

The potential plant community on the Reno Variant soil is mainly Wyoming big sagebrush, green ephedra, and desert need egrass. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and desert needlegrass. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope, the very low available water capacity, and restricted rooting depth.

Steepness of slope limits access and movement of livestock, Livestock grazing should be managed to protect these soils from excessive erosion and to prevent overgrazing in the less sloping areas.

The potential plant community on the Hyloc soil is mainly single-leaf pinyon and Utah juniper. The present vegetation in most areas is mainly single-leaf pinyon and Utah juniper with an understory of Wyoming big sagebrush and Thurber need egrass.

This soil can produce 3 cords of wood per acre in a stand of pinyon and jumper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing trees are the very low available water capacity.

and the shallow depth to bedrock.

The Old Camp soil is limited for roads because of shallow depth to bedrock and stones and cobbies in the soil. Roads should be designed to minimize cuts. because of the limited depth to bedrock. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. The Reno Variant soil is limited for roads because of slope. The Hyloc sor is mited for roads because of slope, low sor strength, and high shrink-swell potential of the clayey subsor. Roads should be provided with a stable base and an adequate wearing surface. Cutting and filling are reduced by building roads in the less sloping areas. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Old Camp soil is in capability subclass VIIs and in range site 26-22. The Reno Variant soil is in capability subclass VIIe and in range site 26-23. The Hyloc so is

in capability subclass VIIe.

Prime Farmland

Prime farmland as defined by the United States
Department of Agriculture is the land that is best suited
to producing food feed, forage, fiber, and odseed crops
it must a their be used for producing food or fiber or be
available for these uses. It has the soil quality, length of
growing season, and moisture supply needed to
economically produce a sustained high yield of crops
when it is managed properly. Prime farmland produces
the highest yields with minimal energy and economic
resources, and farming it results in the feast disturbance
of the environment.

Prime farmland commonly has an adequate and dispendable supply of moisture from precipitation or irrigation. If also has a favorable temperature and length of growing season and an acceptable level of acidity or alka inty it has few if any rock fragments and is permeable to water and air. Prime farmland is not excessively eroded or saturated with water for long periods and is not flooded during the growing season. The slope is no more than 6 percent. So is that are limited by a hazard of flooding may qualify for prime farmland if this limitation is overcome. Onsite investigation is needed to determine the extent of this limitation.

About 62 200 acres, or nearly 5 percent, of the survey area meets the requirements for prime farmland if an adequate and dependable supply of imigation water is available. The major imigated areas are in Mason and 5m th Valleys, and some areas are along the Carson River. The main crops grown are corn onlons, garlic small, grain, and potatoes. Alfa talls the principal hay crop.

The following map units meet the soil requirements for prime farm and when irrigated and, if needed, protected from flooding

- 181 Charlebois joam, 0 to 2 percent slopes
- 182 Charlebois loam, 2 to 4 percent slopes

- Charlebois gravelly foam 0 to 2 percent slopes
- * Charlebois sandy loam 0 to 2 percent slopes
 - Liia loam
 - Dia clay loam
 - Dia clay loam, well
- Dia Sagouspe complex
- Dilhod loam
 - Dithod loam, clay substratum
- Dithodic ay loam, well
 - Dilhod clay loam
- Dithod Sagouspe-Dia comp ox
 - 1 Fast Fork loam
 - East Fork foam occasionally flooded
 - East Fork clay learn
- East Fork clay loam clay substratum
 - East Fork gravelly clay loam
 - Falion sand
- Fallon fine sandy loam
 - Failor line sandy loam frequently flooded
 - Ferniey loamy sand
 - Ferniey loamy sand, drained
 - Haybourne loam
- 1 Holbrook-Holsprings complex, 2 to 15 percent
 - Hotsprings loamy coarse sand, 2 to 8 percent slopes
- Hotsprings gravelly learny coarse sand 0 to 2 percent slopes
- Hotsprings-Holbrook complex, 2 to 4 percent slopes
- Obanion sandy toam drained
- Patna loam 0 to 2 percent slopes
- / Rose Creek loam
- Sagouspe sandy loam
- 1 Sagouspe loam, wet
 - 21 Wabuska loamy sand
 - zz Wabuska loam

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area it can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also it can help avoid soil related failures in land uses.

In preparing a soft survey soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the spils. They collect data on erosion, droughtness flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

information in this section can be used to plan the use and management of soils for crops and pasture as range and and woodland, as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities, and for widdle habitat it can be used to identify the potentials and limitations of each soil for specific and uses and to help prevent construction facures caused by unlavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific and uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil

Contractors can use this survey to locate sources of sand and grave , roadlin, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil avers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the sale disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

John Schelling, district conservationist. Soil Conservation Service heiped write this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of and capability classification used by the Soil Conservation Service is explained, and the estimated

yields of the main crops and hay and pasture plants are listed for each so:

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under ' Detailed soil map units' 'Specific information can be obtained from the local office of the Soil Conservation Service of the Cooperative Extension Service

Resource management systems are a combination of interrelated conservation practices and management techniques used to arrest or prevent deterioration and maintain the productive capability of the soil. This means that soil crosson as wer as other factors that may influence production are kept within acceptable. mits

Soils may differ in management needs, however, there are basic essential practices that apply to all dulivated soils. Aspects of management are discussed in the following paragraphs.

Cropping systems.—A desirable cropping system consists of growing crops in rotation and using cultural and management practices that improve the soil and more than offset the depiction and deterioration of the soil. The system should protect the soil from crosion and maintain or improve fertility and tifth. It should not use perennial legumes, grass legume mixtures or other crops that produce large quantities of residue to compensate for crops in the rotation that produce lift is or no residue.

Adequate ferbizer should be used to maintain or improve ferbility. Thage operations should be limited to those that are essential for seedbed preparation and weed control. They should be timed to coincide with the proper soil moisture condition to avoid compaction and maintain Lith.

A typical cropping system used in this survey area is 8 to 10 years of affalfa and 2 years of small grain. Residue from small grain is usually returned to the soil. Occasionally, affalfa is seeded into the grain stubble to protect the soil from erosion. Onlons or garlic can be substituted for 1 year of affalfa or small grain.

Irrigation water management.—Proper irrigation water management is the application of irrigation water at rates and in amounts adequate to produce high crop yields and to minimize soil and water losses. Water should be applied according to the crop needs and the characteristics of the soil

A good impation distribution system is one that has enough capacity to maet the needs of the crops grown and that is properly located and controlled so that seepage losses are min ma. The design of an impation system is governed by the method of impation to be used the amount of and leveling needed, and the expected efficiency in applying water.

To apply water efficiently, consider the available water capacity the water intake rate, and the crop needs. Most crops should be impated when 40 or 50 percent of the available moisture in the top half of the root zone has been used. A sor check can be made 2 days after rigation to determine whether the desired amount of moisture was added.

Management of saline soils.—Like most soils in and and suband regions, the soils in this survey area contain at least small quantities of soluble salts and alkali. In some soils high concentrations of salts and alkali limit or prevent the growth of crops. Because precipitation is low and the rate of evaporation is high salts accumulate in the root zone. In addition, many low-lying areas receive salty water from runoff or seepage. Surface evaporation of this water generally results in an increase of soluble salts on or in the soils. In some areas that have a high water table, water rises in the soil by capillary action and carries dissolved salts with it. The soluble salts can be moved to any part of the soil profile.

A so that contains excessive amounts of soluble sets is defended as a ne soil. One that contains excessive amounts of absorbed sodium is called an alkali soil. A soil that contains excessive amounts of both soluble sets and alkali is referred to as a saline-alkali soil.

Three classes of sail and alkali content have been used in this survey. These classes are as follows.

Avansatine-nonalkali soils are those that are free of excess sails and a kali and contain less than 0.15 percent sails. The conductivity of the saturation extract is less than 4 m limhos per centimeter at 25 degrees C, and the content of exchangeable sodium is less than 15 percent.

Slightly saline-alkali soils are those that contain 0.15 to 0.35 percent sails or in which the conductivity of the saturation extract is 4 to 8 millimhos per centimeter at 25 degrees C. The content of exchangeable sodium is 15 to 20 percent for soils that are moderately coarse, medium moderately fine, and fine textured.

Strongly saline-alkali soils are those that contain more than 0.65 percent saits or in which the conductivity of the saluration extract is more than 16 millimbos per centimeter at 25 degrees C. The content of exchangeable sodium is more than 25 percent for soils that are moderately coarse, medium, moderately fine, and fine textured.

A though a distinct gap occurs between the second and third classes, an intermediate, or moderate, class is not needed in this survey area because a very small

percentage of the samples and yzed was moderately same also.

Some soils mapped as slightly saline-alkal are free of excess salts and alkal in the upper 4 or 5 inches, but they contain slight or moderate concentrations just below the plow layer. Several soils mapped as strongly saline-alkali are only slightly affected in the plow layer.

Sois differ in the kinds of salt they contain and in the practices needed for improvement however, some general guidelines can be given. A good supply of impation water and adequate drainage must be provided to reclaim any soil in this survey area. The most common method of applying water for reclamation is leveling the areas to a uniform grade and then flooding them between border dikes if drainage is adequate and large amounts of water are used, this method is effective in leaching the soluble saits out of the root zone.

Application of plant nutrients.—Most crops in the survey area will respond to solid or liquid fertilizer. Specific fertilizer requirements are based upon soil samples or plant tissue analyses. Applications of phosphorus and nitrogen increase production of small grain and aid in establishing a faila. Established a faila unless seeded in combination with grass, usually only needs applications of phosphorus throughout its stand furation.

Erosion control.—Protection of the surface layer from water erosion and soil blowing is important because the surface layer contains most of the organic matter and is generally more fertile than the rest of the soil. Soil blowing can be controlled by leaving the plant cover on the soil surface and by using minimum tillage during windy periods of the year. Control of water erosion generally is accomplished by leveling and applying imaginary water at the proper rate.

Pasture management.—Proper pasture management consists of grazing at an intensity that maintains a prolonged stand of high quality grasses and legumes, protects the soil from erosion, and ilmits water losses. Rotating grazing among several pastures permits the regrowth of plants. Grazing when pastures are too well results in compaction and deterioration of the soil structure and reduces the water intake rate of the soil.

Increased yields generally are obtained when commercial fertilizer or barriyard manure is applied. Droppings of manure can be spread with a drag spring Weeds generally are controlled by mowing.

The frequency of impation of pasture should vary according to soil texture, daylight hours, temperature, and plant growth and vigor impate before the soil moisture is reduced to less than 50 percent of the available water capacity.

Hayland management.—Proper hayland management insures the prolonged life of desirable forage plants, maintains or improves the quality of forage, protects the soft from erosion, and limits water losses.

Alfalfa hay is grown on most of the hayland in the survey area. High quality, certified, inoculated seeds of locally adapted species produce the highest yields during the relatively short growing season. The frequency and amount of impation water needed depend on the available water capacity of the soil and the rate of evapoliranspiration.

Land leveling, grading, shaping, and subsolling should be completed before final seedbed preparation. An annual crop should be grown for 1 year before establishing a faila. In general, yields are increased with the application of fertilizer. For the highest quality forage a falfa should be harvested at about one-tenth bloom or when new crown buds are 1 to 15 inches long.

Aftermath grazing can be used in fall or winter Stubble should be left at a height of 3 to 4 inches for protection from erosion. Plants should not be grazed lete in winter or early in spring, when they have started new growth. Grazing at this time depictes nutrient reserves in the roots, which can demage the stand and reduce forage production.

Drainage—Land adjacent to flood plains of perennial and intermittent streams usually has a seasonal high water table from December to July. This water table rises in the fall when evapotranspiration decreases and is at its minimum depth in spring as a result of runoff Soils that are flooded naturally or by seasonal impation require surface drainage.

Field ditch mains or laterals are needed to dispose of excess surface or subsurface water to intercept ground water, to control ground water levels, and to leach sait and alkair from the soils.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfal and other ofimatic factors.

The yields are based mainly on the experience and records of farmers conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding, the proper planting and seeding rates, suitable high-yielding crop varieties appropriate and timely tilage, control of weeds, plant diseases, and harmful insects, favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop, effective use of crop residue barnyard manure and green-manure crops, and harvesting that insures the smallest possible loss.

For yields of ingated crops, it is assumed that the ingation system is adapted to the soils and to the crops grown, that good quality imgation water is uniformly applied as needed, and that tillage is kept to a min mum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not fisted because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally exponsive andforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland for woodland, and for engineering purposes.

in the capability system, soils are generally grouped at three levels capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

capability classes the broadest groups are designated by Roman numerals I through VII. The numerals indicate progressively greater, mitations and narrower choices for practical use. The classes are defined as follows.

Class I soils have slight limitations that restrict their

Class it soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class bill so is have severe limitations that reduce the choice of plants or that require special conservation practices, or both

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both

Class V soils are not likely to erode but have other imitations, impractical to remove, that limit their use

Crass V. soils have severe limitations that make them generally unsuitable for cultivation

Class VI) soils have very severe limitations that make them unsuitable for cultivation. Class VIII so is and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are sor groups within one class. They are designated by adding a small letter e. w.s. or c. to the class numeral for example, the The retter e shows that the main limitation is risk of erosion unless close-growing plant cover is maintained, wishows that water in or on the son interferes with plant growth or cultivation on some sons the wetness can be partly corrected by artificial drainage), s shows that the son is limited mainly because it is shallow droughty or story and c, used in only some parts of the United States, shows that the chief implication is climate that is very cold by very dry.

in class I there are no subclasses because the soils of this class have few ilm tations. Class V contains only the subclisses indicated by w. s. or c because the soils in class V are subject to it e or no erosion. They have other limitations that restrict their use to pasture rangeland, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the section. Dictailed soil map units.

Rangeland

About 89 percent of the survey area is range and About 85 percent of the agricultural income is derived from livestock, principally callie. Some sheep are raised also Ranches vary in size from about 5,000 to 250,000 acres. Most of the range and is administered by the Bureau of Land Management and the Forest Service.

On many ranches the forage produced on range and is supplemented by crop stubble and small grain. In winter the native forage is often supplemented by hay and protein concentrate. On some ranches calves and year logs are creep ted to increase their market weight.

Grazing management should be at an intensity that maintains arough cover to protect the soil and maintains or improves the quantity and quality of desirable vegetation. This management applies to all grazing animals including livestock, game animals, and wild horses.

The most effective way to achieve good management of livestock grazing is to use a planned grazing system. This is a system in which two or more grazing units are alternately rested from grazing in a planned sequence over a period of years. The rest period should extend at least through the growing season of the key plants. To provide uniform distribution of grazing stock water developments, fencing salting, or stock trails may also be needed.

Sometimes it is feasible to apply practices such as brush management or rangeland seeding to accelerate range improvement. Brush management should be applied when less desirable woody species increase to excessive amounts. This practice can be effectively

planned and applied to benefit both livestock and wild fe white reducing sedimentation and improving watershed quality.

tise of chemicals is effective in brush management. If chemicals are applied according to the manufacturer's recommendations and at the proper time, good results can be expected. There must be an adequate amount of desirable plant species in the understory to respond to the treatment. Prescribed burning can also be used in brush management. It is relatively nexpensive but requires precautions. A good understory plant community is needed to provide fuel, and proper timing of the burning is critical. Mechanical treatment practices, such as plowing, chairing, or beating are effective on certain sites but the cost is high.

Rangeland seeding should be applied when the range has deteriorated to an extent that desirable plant species are not present. Sites to be seeded should be evaluated to determine adapted species and proper seeding techniques. The success of rangeland seeding depends upon the amount of moisture available during the growing season. Only about a third of the survey area receives enough precipitation to make seeding feasible.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on range and are closely rolated to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 6 shows, for each sor, the range site the total annual production of vegetation in favorable normal and unfavorable years, the characteristic vegetation and the average percentage of each species. Only those soils that are used as or are suited to rangeland are isted Explanation of the column headings in table 6 follows.

A range site is a distinctive kind of rangeland that produces a character stic natural plant community that differs from natural plant communities on other range sites in kind amount and proportion of range plants. The relationship between solls and vegetation was established during this survey thus, range sites generally can be determined directly from the soil map. So properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table are also important.

Total production is the amount of vegetation that can be expected to grow annually on well managed range and that is supporting the potential natural plant community. It includes all vegetation, whether or not it is paratable to grazing animals, it includes the current year's growth of leaves, twigs, and fin to of woody plants, it does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a

normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average generally because of low available soil moisture.

Dry weight is the total annual yield per acre reduced to a common percent of air-dry moisture.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name under composition, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Pange management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition. Range condition is determined by companing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community. The better the range condition. Range condition is an ecological rating only. If does not have a specific meaning that pertains to the present plant community in a given use.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, reduction of undesirable brush species, conservation of water and control of water erosion and soil blowing. Sometimes, however, a range condition somewhat below the potential meets grazing needs provides wild te habitat, and protects soil and water rasources.

Woodland Management and Productivity

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitablity) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number indicates the potential productivity of the soils for important trees. The number it indicates very high productivity, 2, high, 3 moderately high, 4, moderate, and 5 low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter x indicates storiness or rockiness, will excessive water in or on the soil toxic substances in the soil, d, restricted root depth, c, clay in the upper part of the soil; s, sandy

texture, f, high content of coarse fragments in the soil profile and r, steep slopes. The letter o indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as lollows x, w 1, d c, s, 1, and r

In table 7, slight, moderate, and severe indicate the degree of the major soil limitations to be considered in management.

Ratings of the erosion hazard indicate the risk of loss of soil in well managed woodland. The risk is slight if the expected soil loss is small important if measures are needed to control erosion during logging and road construction, and severe if intensive management or special equipment and methods are needed to provent excessive loss of soil

Patings of equipment limitation reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of slight indicates that use of equipment is not iimited to a particular kind of equipment or time of year moderate indicates a short seasonal limitation or a need for some modification in management or in equipment, and severe indicates a seasonal limitation, a need for special equipment or management or a hazard in the use of equipment.

Seeding mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainta. A rating of slight indicates that the expected mortality is less than 25 percent. moderate, 25 to 50 percent, and severe, more than 50 percent.

Ratings of windthrow hazard are based on soil characteristics that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of slight indicates that few trees may be blown down by strong winds, moderate, that some trees will be blown down during periods of excessive soil wetness and strong winds, and severe, that many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

The potential productivity of merchantable or common trees on a soil is expressed as a site index. Most of the woodland in Lyon County is Pinyon pine and Utah jumper. The site index for these species is based on their average spacing and trunk diameter at a height of 1 foot. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Windbreaks and Environmental Plantings

John Schelling, district conservationist. Soil Conservation Service holped write this socion.

Windbreaks in this survey area are limited. They may be desirable for protection of livestock and buildings however, all windbreaks in this area need to be impated.

Species adapted to the specific sors should be selected. Species suited to deep, wer drained soils include Fremont cottonwood (male). Siberian elm Scotch pine, cotoneaster and Siberian peashrub. Popiar cottonwood. Russian-olive, golden willow buffaloberry redosier dogwood and honeysuckle are suited to wet soils. Species adapted to saline-alkali soils include. Siberian elm, mulberry, Russian-olive, buffaloberry, lourwing salibush, and big salibush. Species suited to shallow soils include honeylocust. Rocky Mountain uniper, chokacherry, cotoneaster, currant, Siberian poashrub, and pyracantha.

Windbreaks protect ivestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habital for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevaling wind and at specific intervals across the field. The interval depends on the erodibility of the soil Field windbreaks protect crop and and crops from wind, hold show on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees are closely spaced. To insure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and meintained in good condition.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various so is. The estimates in table 8 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Soil Conservation Service or the Cooperative Extension Service or from a flursery.

Recreation

The survey area contains several areas that have recreational potentia. These vary from mountainous areas to valley meadows and banks of meandering rivers. Outdoor recreation includes buriting, fishing picnicking, nding, hiking, hunting for rocks and artifacts, and visiting mining towns and ghost towns. The survey area has abundant open space, much of which is public

ands. Wooded mountains hills covered with sagebrush, treesned rivers and streams, fertile valleys, and barren hills are each an important part of the landscape.

State parks in the area include Fort Churchif, Siver Springs Beach (Lahontan Reservoir), Dayton Historic Park, and the Mason Valley Wild fe Management Area. Recreational facilities maintained by the Forest Service are campgrounds at Pine Grove and Desert Creek and a site 2 miles east of Sonoma near Sweetwater.

Historical sites include Como, Yerington, Mason Valley, Buckskin, Ramsey, Talapoosa, Red Mountain Ludwig, Pine Grove, and the Fremont and Pony Express trais.

The west fork of the Walker River flows through Smith Valley and Wilson Canyon. It is easily access ble and offers good scenic and recreational potential at various selected sites.

The soils of the survey area are rated in table 9. according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as welness, slope, and texture of the surface layer. Suscept bility to flooding is considered. Not considered in the ratings, but important in evaluating a site are the location and accessibility of the area. The size and shape of the area and its scenic quality vegetation, access to water, potential water impoundment sales, and access to public sewerlines. The capacity of the soil to absorb septic tank off uent and the abouty of the sor to support vegetation are a so important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height duration, intensity, and frequency of flooding is essential.

in table 9 the degree of soil limitation is expressed as slight, moderate, or severe *Slight* means that so properties are generally favorable and that imitations are minor and easily overcome *Moderate* means that mitations can be overcome or a leviated by planning design, or special maintenance. *Severe* means that so properties are unfavorable and that imitations can be offset only by costly soil reclamation, special design, intensive maintenance limited use, or by a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing san tary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has tew or no stones or boulders, absorbs rainfall readily but

remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Praygrounds require soils that can withstand intensive foot traffic. The best so is are almost lever and are not well or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking horseback riding, and beyong should require hittle or no cutting and titing. The best so is are not well, are firm after rains are not dusty when dry and are not subject to flooding more than once a year during the period of use. They have moderate alopes and few or no stones or boulders on the surface.

Wildlife Habitat

Wildlife a a valuable resource in the survey area it provides opportunities for such outdoor activities as fishing, bird watching, and photography

Wildle is a product of the solland line crops responds to good management. The production of adapted wild be generally is in balance with available essentia, food and cover. Most wildlife habitat is created improved or maintained by planting suitable vegetation or by manipulating existing vegetation to bring about the natural establishment of desired plants, or both. The comprete habitat for a species of wildlife generally requires several kinds of soil and a variety of land uses. For this reason wildlife interpretations of the survey area can beat be related to the map units described in the section. "General soll map units."

In the following paragraphs the general map units are grouped into wildlife areas. These areas differ in potential species and environmental factors.

Wildlife Area 1 is made up of general map unit 1. The soils in this area are nearly level and are on slightly elevated lake plains and old lake bottoms. They are somewhat poorly drained. The native vegetation is mostly basin big sagebrush and basin wildrye on the slightly salt- and a kali-affected soils in this area and is black greasewood, alkali sacaton, and saltgrass on the strongly salt- and alkali-affected soils.

Wild fe species in this area include jackrabbit, coyote and fox. Some qual are on or hear the areas of crop and. Ditchbanks can be planted with desirable plants to make a more attractive habital for quall and

other openland wildlife. A few mule deer use this area in writer.

The availability of water is the main concern for management of wild fe in this area. The rangeland should be managed to avoid increasing the salt and alkal content of the soils which results in a less desirable plant community. Small points constructed to provide livestock and wildlife watering facilities can be stocked with fish

Wildlife Area 2 is made up of unit 2. The soils in this area are nearly level and are on flood plains of perennia streams and creeks and on old take plains. This area is suited to a wide variety of wild to because of the amount of water available and because of the well, meadow-type vegetation and scattered patches of willows on the poorly drained soils and the big sagebrush, buffalloberry and basin wildrye on the better drained so is. Most of the soils in this area are cultivated.

Wild te species in this area include beaver cottontal ackrabbit mule deer quail coyote ducks goese, muskrats, mink, and bobcat. Most of the wild te is dependent on the meadows, therefore management should be directed toward improving or maintaining the meadows and shallow water areas. Proper use of pastureland and range and is needed to avoid accelerated stream entrenchment and deterioration of the habitat. The Walker and Carson Rivers in this area support trout and cattish.

widdle Area 3 is made up of units 4 and 16. The soils in this area are nearly level and moderately sloping and are on stabilized dunes and sides of terraces on old wind-worked take terraces and alluvial fans. The native vegetation is mostly lind an ricegrass, shadscale, and fourwing satibush. The wildlife populations are concentrated near the bodies of water in this area.

Wildlife species in this area include jackrabb I cottontail fox, coyote and quail. This area can attract wild ite if water and vegetation that provides food and cover are available. Small areas of the soils in this area are impated.

Windlife Area 4 is made up of units 3 5, 7, and 11. This area is on alluvial lans, terraces, and low-ying toothills. The native vegetation is variable. The types of vegetation include big sagebrush, low sagebrush, grass, and some small areas of pinyon and juniper. Because of a shortage of water, the wildlife in this area is not well distributed. Some of the area is used as cropland.

Wildlife species in this area include jackrabbit, coyote, and bobcat. Quall are on or near the areas of cropland in cultivated areas, fence rows and dischbanks planted with desirable vegetation provide a more attractive habitat for quail and other openland wildlife.

Widdife Area 5 is made up of units 6, 8, and 10. This area is on hills and mountains and an altuvial fans and terraces that receive little precipitation. The native vegetation is mostly Barrey greasewood, shadscale and Indian neegrass. A few areas are used as cropland.

Wildlife species in this area include jackrabbit, coyota, chukar and fox. The availability of water is the main concern for management of wildlife in this area. The wild fe habitat can be enhanced by properly locating watering facilities.

Wildlife Area 6 is made up of units 9, 12, and 13. This area is on moderately sloping to sleep footbills and in low-lying areas on mountainsides. The native vegetation is mostly pinyon with an understory of antelope bitterbrush, big sagebrush, low sagebrush, and grasses included in this area are seep areas that support qualiting aspen.

Viable species in this area include ackrabbit cottontal deer coyote, bobcat, sage grouse chukar and mountain lion. Drainageways, seeps, and springs provide some water for wild lie in this area, however, the wildlife habitatican be enhanced by properly locating watering facilities. Proper rangeland use helps to proserve the habitat.

Wildlife area 7 is made up of unit 14. This area is in sloop and very steep high-lying areas on mountainsides. The native vegetation is mostly mountain big sagebrush and curreat mountainmahogany and an underslory of western need egrass and basin wildrye. The drainageways in this area are the main source of water, however springs also provide some water.

Included in this area are small, well-meadows pockets of show that support showberry and whitebark pine, and ridges that support low sagebrush. These areas are significant to the overall potential for habitat. The small meadows need to be protected from gullying. Proper range and use is needed to maintain the habitat.

Wird te species in this area include mule deer sage grouse chuker, jackrabbit, cottontail, coyote, bobcat, and mountain from

Soils affect the kind and amount of vegetation that is available to wild fe as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of deskrable plants.

The elements of which the habitat are described in the following paragraphs

Grain and seed crops are domestic grains and seed producing herbaceous plants. Soil properties and teatures that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer available water capacity wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, pats, and barley

Grasses and legumes are domestic perennia, grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone itexture of the surface layer available.

water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue clover, and a falfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. So properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer available water capacity wetness, surface stoniness, and flood hazard. Soil temperature and so moisture are also considerations. Examples of wild herbaceous plants are Sandberg bijugrass, indian incegrass, and globemallow.

Conferous plants furnish browse and seeds. So properties and features that affect the growth of conferous trees shrubs and ground cover are depth of the root zone, available water capacity, and wetness Examples of conferous plants are proyon and jumper

Shrubs are bushy woody plants that produce fruit, buds twigs bark and lorage Soil proporties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and sommoisture. Examples of shrubs are mountainmahogany bifferbrush, snowberry, and big sagebrush.

Wetland plants are annual and perennia wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. So properties and leatures affecting wet and plants are texture of the surface layer wetness, reaction, salin by slope, and surface stoniness. Examples of walland plants are smartweed, wild milet, wildrice, saltgrass, cordgrass, rushes, sedges, and reads.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfow feeding areas, and pends.

The habitat for various kinds of wild-fe is described in the following paragraphs

Habitat for openiand wildlife consists of cropland, pasture meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include quair, pheasant, meadowlark, field sparrow cottontail, and red fox.

Habital for woodland wildirfe consists of areas of deciduous plants or conferous plants, or both, and associated grasses, legumes, and wild herbaceous plants. Wildirfe attracted to these areas include wild turkey, woodpeckers, squirrels, gray fox, raccoon, and deer

Habitat for wetland widlife consists of open, marshy or swampy shallow water areas. Some of the wild fe attracted to such areas are ducks, geese shore birds, muskrat, mink, and beaver

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wild fe attracted to rangeland include antelope deer, sage grouse, meadowlark, and lark bunting.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables. Building site development, San tary facilities. Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however has limitations For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnal expenenced in the design and construction of angineering works.

Government ordinances and regulations that restrict cortain and uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in pranning, in site selection, and in design

Soil properties site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey determinations were made about grain-size distribution, liquid, mit, prasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope il kelihood of flooding, natural soil structure aggregation, and soil density. Data were corrected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility permeability corrosivity, shrink swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial industrial, and recreation uses. (2) make preiminary estimates of construction conditions (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables, (4) evaluate a ternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons. (5)

pian detailed onsite investigations of soils and geology; (6) locate potential sources of gravel sand earthfill and topsoil, (7) plan drainage systems, irrigation systems ponds terraces and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by companing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary

Building Site Development

Table 10 shows the degree and kind of soit imitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets. The imitations are considered slight if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome, moderate if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations, and severe if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil imitations are severe.

Shallow excavations are trenches of holes dug to a maximum depth of 5 or 6 feet for basements, graves utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan or a very firm dense layer, stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation waits or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Owellings and small commercial buildings are structures built on shallow foundations on und sturbed soil. The load limit is the same as that for single-family dwellings no higher than three stones. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan large stones, and flooding affect the ease of excavation and

construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an at weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of graver, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fulls are generally mitted to less than 6 feet. The ratings are based on soil properties site features, and observed performance of the soils. Depth to bedrock or to a cemented pain a high water table flooding, large stones and slope affect the base of excavaling and grading. Soil strength (as interred from the engineering classification of the soil) shrink-swell potential frost action potential and depth to a high water table allied the traffic supporting capacity.

Sanitary Facilities

Table 11 shows the degree and the kind of soil firm tations that affect septic tank absorption fields sewage lagoons, and sanitary landfills. The limitations are considered slight if soil properties and site leatures are generally favorable for the indicated use and imitations are minor and easily overcome imoderate if soil properties or site features are not tavorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the imitations, and severe if soil properties or site features are soluntavorable or solutifically to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A reling of good indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected fair indicates that soil properties and site features are moderately favorable for the use and one or more so properties or site features make the soil less desirable than the soils rated good, and poor indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance or costly a teration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and halside seepage, can affect public health. Ground water can be politited if highly permeable sand and grave or fractured bedrock is less

than 4 feet below the base of the absorption field, if slope is excessive or if the water table is near the surface. There must be unsaturated so material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while serobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly evel floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Noarly impervious soil material for the lagoon floor and sides a required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the tagoon floor. The surface layer and generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table depth to bedrock or to a cemented pan, flooding, large stones and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to reise the level of sewage in the lagoon causes a lagoon to function unsatisfactority. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope bedrock, and demented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of andly—trench and area on a trench and it, the waste is placed in a trench lit is spread, compacted and covered daily with a thin tayer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 11 are based on soil properties site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan a high water table, slope, and flooding affect both types of andfill. Texture, stones and boulders, highly organic ayers, soil reaction, and content of salts and sodium affect trench type landfills, unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a imitation rated

sight or moderate may not be valid. Onsite investigation is needed

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary andfil. The soil material is obtained offsite transported to the landfill and spread over the waste.

Soil texture wetness, coarse tragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of arge stones or excess gravel are the best cover for a andfill. Clayey soils are sticky or cloddy and are difficult to spread sandy so is are subject to soil blowing.

After so material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a tandfit should be suitable for plants. The surface layer generally has the best workability more organic matter, and the best potential for plants. Material from the surface layer should be stocky and for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfil send gravel and topsoil. The soils are rated good, fair or poor as a source of roadfil and topsoil. They are rated as a probable or improbable source of sand and grave. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadill is so material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface ager to a depth of 5 or 6 feet. It is assumed that soil agers will be mixed during excavating and spreading. Many so a have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with time or cement is not considered in the ratings.

The ratings are based on soil properties site features, and observed performance of the soils. The thickness of suitable materia is a major consideration. The ease of excavation is affected by arge stones, a high water table, and slope frow well the soil performs in place after it has been compacted and drained is determined by its strength (as interred from the engineering classification of the soil) and shrink swell potentia.

Soils rated good contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, lew cobbles and stones, and stones and feet. Soils rated fair are more than 35 percent sit and clay sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated poor have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are well and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely in table 12 only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil) the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil sense descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or grave, or a layer of sand or grave, that is up to 12 percent sity lines. This material must be at least 3 leet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and sitistone, are not considered to be said and grave.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 nones of a soil is evaluated for use as topsoil. Also evaluated is the reciamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating loading, and spreading is affected by rock fragments, slope, a water table, so texture, and thickness of suitable materia. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated good have fnable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally ferble or respond well to lertifizer, and are not so wet that excavation is difficult.

Soits rated fair are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to

40 inches of suitable material, so is that have an appreciable amount of gravel stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

So a rated poor are very sandy or clayey, have tess than 20 inches of suitable material, have a large amount of gravel stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The limitations are considered slight if soil properties and site features are generally lavorable for the indicated use and limitations are minor and are easily overcome moderate. I soil properties or site features are not lavorable for the indicated use and special planning design, or maintenance is needed to overcome or minimize the limitations, and severe if soil properties or site features are so unlavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive leatures that affect drainage, impation, and terraces and diversions.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the local to fracture diversity to the storage capacity of the reservoir are a

Embankments, dikes, and levees are raised structures of soil material generally less than 20 feet high constructed to impound water or to protect land against overflow in this table, the soils are rated as a source of material for embankment fil. The ratings apply to the soil material below the surface, ayer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soli to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment Generally deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping and erosion and have favorable compaction characteristics. Unfavorable features include tess than 5 feet of suitable material and a high content of stones or boulders, organic matter of saits of sod um. A high water table affects the amount of usable material traiso affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the sor is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement, permeability depth to a high water table or depth of standing water if the soil is subject to ponding, slope, susceptibility to flooding subsidence of organic layers, and potential frost action Excavating and grading and the stability of dichbanks are affected by depth to bedrock or to a cemented pan large stones, slope, and the hazard of culbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as saits, sodium, or suitur. Availat, by of drainage outlets is not considered in the rating.

Imgation is the controlled application of water to supplement reinfall and support plant growth. The design and management of an imgation system are affected by depth to the water table, the need for drainage, flooding available water capacity, intake rate, permeability erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of saits or sodium, and soit reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severa hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of so, and water features, listed in tables, are explained on

the following pages

So properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Estab shed standard procedures are to owed. During the survey, many shallow borings are made and examined to identify and classify the soils and to de neate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations on aboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize.

key soils

The estimates of soil proporties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series.

under "Soil series and their morphology"

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand silt, and clay in the raction of the sor that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand, if a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (2) and the system adopted by the American Association of State Highway and Transportation Officials (1)

The United system classifies so is according to properties that affect their use as construction materia. Soils are classified according to grain-size distribution of the fraction tess than 3 inches in diameter and according to prasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW GP GM GC, SW SP SM, and SC sifty and clayey so is as Mt. CL. OL. MH, CH, and OH, and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual crassification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance in this system, the traction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of lines (silt and clay). At the other extreme, soils in group A-7 are line grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock tragments target than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Senes), have openings of 4.76, 2.00, 0.420, and 0.072 mill meters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in hearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of gram-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg timits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0 002 millimeter in diameter in this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil materia, that is, ess than 2 mill meters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink swell potential permeability, and plasticity, the ease of soil dispersion, and other so properties. The amount and kind of clay in a so- also affect tillage and earth-moving operations.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on so: characteristics observed in the field particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the so is capable of storing for use by plants. The capacity for water storage is given in inches of water per noh of soil for each major soil layer. The capacity values depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salmity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of non-migated soils. The salimity of imigated soils is affected by the quality of the imigation water and by the frequency of water application. Hence, the salimity of

soils in individual fields can differ greatly from the value given in the table. Sainity affects the suitability of a soil for crop production, the stability of soil if used as construction material and the potential of the soil to corrode metal and concrete.

Shrink swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of so is in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads and other structures. Special design is often needed.

Shrink swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are low, a change of less than 3 percent; moderate, 3 to 5 percent; and high more than 6 percent. Very high, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and nil erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and nil erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. The higher the value the more susceptible the soil is to sheet and nil erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind eradibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion and the amount of soil lost. Soils are grouped according to the following distinctions.

- 1 Sands, coarse sands, fine sands and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.
- Learny sands, learny fine sands, and learny very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

- Sandy loams coarse sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Grops can be grown if intensive measures to control wind erosion are used.
- 4L. Calcareous loamy soils that are less than 35 percent clay and more than 5 percent finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.
- 4. Clays, sity clays, diay loams, and sity clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.
- 5 Loamy soils that are less than 18 percent day and less than 5 percent finely divided calcium carbonale and sandy diay loams and sandy diays that are less than 5 percent linely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.
- Loamy sors that are 18 to 35 percent clay and ess than 5 percent finely divided calcium carbonate except sitty clay loams. These soils are very slightly crodible. Crops can easily be grown.
- 7 Si ly clay loams that are less than 35 percent clay and less than 5 percent I nely divided calcium carbonate. These sons are very slightly erodible. Crops can easily be grown.
- Stony or grave ly soils and other soils not subject to wind erosion

Soil and Water Features

Tables 16 and 17 give estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not projected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are

Group A. Soils having a high infiritration rate (low runoff potential) when thoroughly wet. These consist mainly of deep well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group 8 Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or

soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group O Soils having a very slow infiltration rate (high nunoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface and soils that are shallow over nearly impervious materia. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none rare common, occasional and frequent. None means that flooding is not probable rare that it is unlikely but possible under unusual weather conditions. common that it is likely under normal conditions, occasional that it occurs on an average of once or less in 2 years, and frequent that it occurs on an average of more than once in 2 years. Duration is expressed as very brief if less than 2 days, brief if 2 to 7 days, and long if more than 7 days. Probable dates are expressed in months. November May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the sol profile, namely thin strata of gravel sand silt or day deposited by floodwater, irregular decrease in organic matter content with increasing depth, and absence of distinctive horizons that form in solls that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency evels.

High water table (seasona.) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasona high water table; the kind of water table—that is, perched artesian or apparent; and the months of the year that the water table commonly is high. A water table that is seasonably high for less than 1 month is not indicated in table 16.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An

artesian water table is under hydrostatic head, generally beneath an impermeable layer. When this tayer is penetrated, the water level rises in an uncased berehote. A perched water table is water standing above an unsaturated zone. In places an upper or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soi. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given in table 17 if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, bissting or special equipment generally is needed for excavation.

Comented pans are comented or indurated subsurface layers within a depth of 5 feet. Such pans cause difficulty in excavation. Pans are classified as thin or thick. A thin pan is less than 3 inches thick if continously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A thick pan is more than 3 inches thick if continously indurated or more than 18 inches thick if discontinuous or fractured. Such a pan is go thick or massive that blasting or special equipment is needed in excavation.

Potential frost action is the likelihood of upward of ateral expansion of the soil caused by the formation of segrogated ice lanses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil Temperature, texture density permeability content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Sifty and highly structured clayey soils that have a high water table in winter are most susceptible to frost action. We if drained, very gravely or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to payements and other rigid structures.

Risk of corresion penains to potential soli-induced electrochemical or chemical action that dissolves or weakens uncoaled steel or concrete. The rate of corresion of uncoaled steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corresion of concrete is based mainly on the suitate and sodium content, texture, moisture content, and acidity of the soil Special site examination and design may be needed if the combination of factors creates a severe corresion environment. The steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel the risk of corrosion expressed as row moderate or high is based on soil drainage class tota acidity electrical resistivity near field capacity and electrical conductivity of the saturation extract

For concrete the risk of corrosion is also expressed as *low, moderate* or *high* it is based on soil texture, acidity and amount of suitates in the saturation extract

Classification of the Soils

The system of sor class lication used by the National Cooperative Sor Survey has six categories (18). Beginning with the broadest, these categories are the order suborder, great group subgroup family and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements in table 18, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER Ten soil orders are recognized. The differences among orders reflect the dominant soil forming processes and the degree of soil formation. Each order is identified by a word ending in soil. An

example is Aridisor

SUBORDER Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Orthid (Orth meaning true, plus id from Andreol).

GREAT GROUP Each suborder is divided into great groups on the basis of close sim at lies in kind. arrangement, and degree of development of pedogenic horizons, soil moisture and temperature regimes, and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Camborthids (Camb, meaning change in plus orthid a suborder of the Andrsots)

SUBGROUP Each great group has a typic subgroup Other subgroups are intergrades or extragrades. The typic is the central concept of the great group it is not necessarly the most extensive intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective Typic identifies the subgroup that typifies the great group. An example is Typic Camborthids.

FAM LY Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class mineral content, temperature regime, depth of the roof zone, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate son properties. An example is painy-skeletal mixed, mesic Typic Camborthids.

SERIES The series consists of soils that have similar hor zons in their profile. The horizons are similar in do or tenture, structure, reaction consistence immeral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in a phabetic order.

Character stics of the soil and the material in which I formed are identified for each series. The soil is compared with similar soils and with nearby so is of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon to lows standards in the Soil Survey Manual (17). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (18). Unless otherwise stated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the so is in the series.

The map units of each sox series are described in the section. Detailed soil map units."

Ackley Series

The Ackley series consists of very deep, well drained, moderately permeable so is on all uvial fans and terraces. These so is formed in alluvium derived from mixed rock sources. Slopes are 0 to 4 percent.

Typical pedon of Ackley grave ly sandy loam 2 to 4 percent slopes, about 950 feet west of the center of sec 29. T 16 N R 21 E

A11 -0 to 1 each, grayish brown (2.5Y 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist, weak medium platy structure, soft, very friable nonsticky and nonplastic few very fine roots. many very fine interstitial pores 15 percent pebbles, neutral abrupt wavy boundary

A12—1 to 3 inches, light brownish gray (2.5Y 6/2) gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist, moderate medium platy structure; soft, very friable, nonsticky and nonplastic common medium roots and many fine and very fine roots, many fine and very fine vesicular pores. 15 percent pebbles neutral labrupt wavy boundary.

A13—3 to 10 inches grayish brown (2.5Y 5/2) gravelly sandy dam very dark grayish brown (2.5Y 3/2) moist, weak medium and coarse subangular blocky structure soft, very fnable, nonsticky and nonplastic common coarse medium fine and very fine roots many very fine interstitia pores and common fine tubular pores: 15 percent pebbles, neutral clear wavy boundary.

B1t—10 to 17 inches, gray shibrown (2.5Y 5/2) sandy loam very dark grayish brown (2.5Y 3/2) moist weak medium subangular blocky structure, slightly hard, very friable slightly sticky and nonplastic common coarse medium, fine and very fine roots many very fine interstitial pores and common line tubular pores, common very thin clay bridges neutral labrupt wavy boundary.

B2t—17 to 27 nches, yellowish brown (10YR 5/4) heavy oam, brown (10YR 4/3) moist, strong medium subangular and angular blocky structure, hard fright, sticky and plastic, few medium roots and common tine and very fine roots, common tine and very fine tubular pores, many thin and moderate y thick clay films on peds and lining pores, neutral.

c ear wavy boundary

B3t—27 to 34 inches brown (10YR 5/3) loam, dark brown (10YR 4/3) moist, moderate medium subangular blocky structure, hard friable, slightly slicky and sightly plastic, few medium roots and common fine and very fine roots, common fine and very fine tubular pores, common thin day bridges on peds and lining pores, neutral, clear wavy boundary.

C1ca 34 o 47 nches light yellowish brown (2.5Y 6/4) fine sandy loam, dark grayish brown (2.5Y 4/2) moist massive; slightly hard, very friable, nonsticky and nonplastic, few fine and very fine roots common fine and very fine tubular pores, slightly effervescent, moderately a kaline gradual wavy

boundary

C2ca—47 to 60 inches, light yellowish brown (2.5Y 6/4) if ne sandy loam, dark grayish brown (2.5Y 4/2) moist, massive soft, very friable, nonsticky and nonplastic, few fine and very fine roots, common fine and very fine tubular pores, slightly effervescent, moderately alkaline.

Thickness of the solum is 20 to 40 inches. The solum is neutral or slightly acid. Depth to carbonates is 30 to 50 inches.

The Bt horizon is sandy loam, sandy clay loam, or loam that averages 18 to 27 percent clay

The C horizon is neutral to strongly alkaline and is sightly to strongly effervescent. In some pedons gypsum crystals are present in the lower part of the C horizon.

Ackley Variant

The Ackiey Variant consists of very deep, well drained moderately rapidly permeable so is on a luvial fans. These soils formed in a luvium derived from basic igneous rock overhing gypsiterous parent material Slopes are 0 to 2 percent.

Typical pedon of Ackley Variant sandy loam in an area of Ackley-Ackley Variant complex, about 950 feet south and 200 feet west of the northeast corner of sec

32 T 16 N R 21 F

A11—0 to 3 inches, pale brown (10YR 6/3) sandy toam dark brown (10YR 3/3) moist imoderate thin platy structure soft very friable, nonsticky and nonplastic, few very fine roots, few medium and many fine and very fine interstitial pores, mildly askaline, abrupt smooth boundary.

A12—3 to 7 inches, brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist, weak thin platy structure parting to moderate fine granular slightly hard, very friable is ightly sticky and slightly plastic common fine and many very fine roots, many fine and very fine interstitial pores, neutral, clear wavy.

boundary

821—7 to 16 inches yellowish brown (10YR 5/4) loam, dark brown (10YR 3/3) moist, weak coarse prismatic structure parting to weak medium and coarse subangular blocky hard triable, sticky and plastic, few medium roots and common fine and very fine roots, many medium line and very fine tubular pores, common thin clay films on peds and lining pores; mildly atkaline, clear wavy boundary.

B3tca—16 to 21 inches, pale brown (10YR 6/3) silt loam, dark yet owish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure: stightly hard, very finable, sticky and plastic; few medium roots and common fine and very fine roots few fine and many very fine tubular pores, few thin clay films on peds: strongly affervescent, strongly

alkaline; abrupt wavy boundary

C1ca—21 to 25 inches: very pale brown (10YR 7/3) sit loam, yellowish brown (10YR 5/4) moist; massive siightly hard, very frable, slightly sticky and slightly plastic: few medium roots and common fine and very fine roots: many very fine interstitial pores, violently effervescent; strongly alkaline labrupt smooth boundary

IoC2 25 to 38 inches, white (10YR 8/2) fine sandy loam, very pale brown (10YR 7/4 and 8/3) moist, massive hard very firm, nonsticky and nonplastic;

many very fine interstitial pores, 50 to 80 percent of materia is gypsum: slightly effervescent in spots

mildly aika ne: clear wavy boundary

IIC3-38 to 60 inches, white (10YR 8-2) fine sandy oam, very pale brown (10YR 7/3) moist, massive; sughtly hard friable honsticky and honorastic 50 to 80 percent of material is gypsum, slightly effervescent to strongly effervescent, mildly alkaline

Depth to the gypsiterous substratum is 20 to 40 inches. Reaction is mid y a kaline or moderately a kaline The Bt horizon is loam sit, or sandy loam that is 18 to 26 percent clay

The I C horizon is 20 to 80 percent gypsum and is nonellervescent to strongly effervescent

Appian Series

The Appian series consists of very deep, well drained moderately slowly permeable soils on take terraces. These soils formed in loamy a livium over tacustrine sed ment derived dominantly from granitic rocks. Slopes are 0 to 2 percent

Typical pedon of Appian loam, 1,200 feet south and 1 200 feet west of the northeast corner of sec. 33, T. 14

N R 25 E

Ap-0 to 8 inches, light brownish gray (10YR 6/2) loam. dark grayish brown (10YR 4/2) moist: moderate medium subangular blocky structure, slightly hard very friable, slightly sticky and slightly plastic common fine and very fine roots, many very fine interstitial pores, slightly effervescent in spots. strongly alkaying, abrupt smooth boundary

B2t-B to 13 inches, brown (10YR 5/3) heavy sandy clay loam dark brown (10YR 4/3) moist, moderate coarse prismatic structure parting to strong medium angular blocky hard, firm, very sticky and very plastic few medium roots and many fine and very fine roots, common fine and many very fine tubular pores, many thin and moderately thick clay films, slightly effervescent strongly alkaline; abrupt

smooth boundary

B3tca-13 to 18 inches, brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to strong medium angular blocky hard, friable, sticky and plastic; few medium and fine roots and many very fine roots, common fine and many very fine tubular pores, common thin clay films, strongly effervescent white ime filaments. matrix is slightly effervescent, strongly alkaline,

abrupt smooth boundary

I/C1--18 to 60 inches, light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist common fine distinct dark brown (7.5YR 4/4) iron mottles, massive soft, very Inable, nonsticky and nonplastic few fine and very fine roots, many fine and very fine interstitial pores, moderately alkaline.

Thickness of the solum and depth to the sandy IIC honzon is 7 to 18 inches. The IC honzon generally is noncalcareous, but it is calcareous in the upper part of some pedons

The Bt horizon is clay loam or sandy clay loam that is 27 to 35 percent clay. Structure is prismatic or columnar. Content of exchangeable sodium is 20 to 50 percent. Reaction is strongly alkaline or very strongly alkaline.

The ItC honzon is sand or coarse sand and commonly contains relict iron mothes. Thin strata of coarse sand fine sand, foamy fine sand, fine sandy loam, or sandy loam are in some pedons. Reaction is mildly a kaline or moderately alkaline

Bango Series

The Bango series consists of very deep, well drained, moderately slowly permeable soils on old lake terraces. These soils formed in loamy adurium over stratified lacustone sediment derived from mixed rock sources. Slopes are 0 to 2 percent

Typical pedon of Bango sandy loam, about 200 feet east of U.S. Highway 95A and about 100 feet north of Spruce Avenue in Silver Springs, 800 feet east and 2.110 feet north of the southwest corner of sec. 30. T.

18 N , A 25 E

A1-0 to 2 inches, light brownish gray (10YR 6/2) sandy toam, dark grayish brown (10YR 4/2) moist, moderate medium and thin platy structure, slightly hard, very fnable nonsticky and nonplastic, few very fine roots, many very fine interstit at pores. moderately alkaline, abrupt wavy boundary

821t-2 to 5 inches, brown (10YR 5/3) sandy clay losm. brown (10YR 473) moist, strong medium prismatic structure, hard, friable sticky and plastic, few fine and many very fine roots, common very fine lubular pores, common thin clay films on taces of peds. moderately alkaline, clear smooth boundary

8221-5 to 13 inches brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist, moderate coarse prismatic structure, hard, very friable listicky and plastic, common medium roots and many fine and very fine roots; few medium and fine and many very fine tubular pores, common thin day films on faces. of peds, moderately alkaline; clear smooth boundary

93t-13 to 18 inches, brown (10YR 5/3) sandy loam. dark brown (10YR 4/3) moist, weak medium subangular blocky structure; slightly hard, very mable, slightly sticky and slightly plastic; common fine and very fine roots, many fine and very fine tubular pores; moderately alkaline: clear smooth

C1 18 to 26 inches, pale brown (10YR 6/3) sandy loam dark yellowish brown (10YR 4/4) moist, massive; stightly hard very Inable, nonsticky and nonplastic, few medium roots and common fine and very fine roots, many fine and very fine tubular pores: moderately alkaline, clear smooth boundary

InC2: 26 to 33 inches, pale brown (10YR 6/3) clay loam dark ye lowish brown (10YR 4/4) moist, massive sightly hard very fnable, slightly sticky and slightly plastic few medium roots and common fine and very fine roots, many fine and very fine tubular pores, slightly effervescent, moderately alkaline, clear smooth boundary.

IIC3—33 to 50 inches, light brownish gray (10YR 6/2) si ty clay dark brown (10YR 4/3) moist, white (10YR 8/1) gypsum veins massive hard friable sticky and piastic, common fine and many very fine roots many fine and very fine tubular pores, strongly effervescent, moderately alkaline clear smooth.

boundary

IVC4—60 to 60 inches, light brown (7.5YR 6/4) sand brown (7.5YR 5/2) moist, many large prominent relict iron mottles that are strong brown (7.5YR 5/6) when moist, massive, soft, very friable, nonsticky and nonplastic, many very line interstitial pores, mildly a kaline.

The solum is 6 to 20 inches thick

The B2t horizon is loam, clay loam, or sandy clay loam that is 20 to 30 percent clay. Reaction is moderately alkaline.

The C horizon is stratified sediment that averages 18 to 30 percent clay. Relict mottles are common in most pedons. Reaction is moderately alkaline or strongly alkaline.

Berit Series

The Berit senes consists of very shallow somewhat excessively drained moderately slowly permeable soils on mountainsides. These soils formed in residuum and colluvium derived from granite. Slopes are 4 to 50 percent.

Typical pedon of Bent extremely stony loam, 30 to 50 percent slopes, in an area of Minneha Bent-Wile association, about 2,500 feet west and 2,550 feet north of the southeast corner of sec. 36, 7, 9 N., R. 25 E.

A11—0 to 3 inches, brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist, moderate medium granular structure; soft, fnable, slightly sticky and slightly plastic; common very fine roots, many very fine interstitial pores; 30 percent pebbles, 30 percent cobbies, and 20 percent stones, slightly acid clear smooth boundary.

B1t—3 to 5 inches, brown (10YR 5/3) extremely cobbly sandy clay loam, dark brown (10YR 3/3) moist, moderate medium subangular blocky structure slightly hard, fnable, sticky and plastic, common fine and many very fine roots, few fine and common very fine tubular pores, many thin clay bridges between

mineral grains, 40 percent pebbles, 20 percent cobbies, and 10 percent stones, neutral, clear wavy boundary.

B21—5 to 7 inches, yellowish brown (10YR 574) extremely cobbly clay loam, dark ye lowish brown (10YR 474) moist, strong medium subangular blocky structure, hard, triable, sticky and plastic, common medium and fine roots and many very fine roots few line and common very fine tubular pores, continuous thin and moderately thick bridges and day films on peds and in pores, 40 percent pobbles. 20 percent cobbles, and 10 percent stones, sightly acid, abrupt wavy boundary.

Cr—7 to 20 inches soft weathered gran tic bedrock day coatings and roots extend into fractures.

Thickness of the solum and depth to the paralithic contact are 4 to 12 inches. Reaction is slightly acid or neutral.

The Bt honzon is sandy clay loam or clay loam that is 50 to 80 percent rock fragments and 25 to 35 percent clay.

Biddleman Series

The Biddleman series consists of very deep well drained, moderately slowly permeable solls on old take terraces and altuvial tans. These soils formed in altuvium over shoreline gravel derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of Biddleman gravelly sandy loam 0 to 8 percent slopes, in an area of Biddleman association 300 feet south and 2 300 feet east of the northwest corner of sec. 1 T. 19 N. R. 24 E.

A11—0 to 3 inches, light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist, weak medium and thick platy structure slightly hard, very friable, nonsticky and nonplastic many fine and very fine vesicular pores, 20 percent peobles, strongly effervescent, moderately a kaline abrupt smooth boundary.

B21 -3 to 7 inches, yellowish brown (10YR 574) gravelly loam dark yellowish brown (10YR 374) moist, moderate medium phamatic structure: slightly hard fnable, sticky and plastic; common fine and very fine roots, many very fine interstitial pores, common thin clay films on peds; 25 percent pebbles, slightly effervescent, moderately alkaline, clear smooth boundary.

B3t—7 to 9 inches, brown (10YR 6/3) gravelly loam dark brown (10YR 3/3) moist, weak coarse prismatic structure parting to weak fine subangular blocky, slightly hard, very finable, slightly sticky and sughtly plastic, common fine and many very fine roots, many very fine interstibal pores, few thin clay films lining pores, 35 percent pebbies, slightly

effervescent, moderately a kaline, clear smooth boundary

IIC1ca—9 to 20 inches, paie brown (10YR 6/3) very gravelly loamy sand with a thin lense of very gravelly sandy loam, dark brown (10YR 3/3) moist, massive soft very friable, nonsticky and nonplastic, common line and very fine roots, many very fine interstital pores 55 percent pebbles and 5 percent cobbles strongly effervescent, moderately a kaline, gradual wavy boundary.

In C2—20 to 60 inches: extremely gravelry sand and very gravelly loamy sand, colors are those of uncoaled mineral grains single grain, loose, nonstickly and nonplastic lew fine and common very fine roots many line and very line interstitial pores. 65 percent pebbles and 5 percent cobbles, mildly alkaline.

Thickness of the solum is 8 to 12 inches. Reaction is moderately alkaline or strongly alkaline.

The Bt horizon is gravery clay toam, gravely toam, or gravery sandy clay toam that averages 20 to 30 percent clay. Content of exchangeable sodium is 15 to 25 percent.

The C horizon is highly stratified, but it averages sand that is 60 to 80 percent rock fragments, mainly peobles

Bluewing Series

The Bluewing series consists of very deep, excessively drained, very rapidly permeable soils on broad alluvia fans. These soils formed in alluvium derived from mixed rock sources. Slopes are 2 to 8 percent.

Typical pedon of B Jewing very gravely sand, 2 to 8 percent slopes about 1,400 feet east and 300 feet north of the southwest corner of sec. 12, T. 17 N. R. 24 E.

- A1—0 to 3 nches grayish brown (2.5Y 5/2) very grave by sand, very dark grayish brown (2.5Y 3/2) moist single grain loose, nonsticky and nonplastic, many fine interstitial pores, 35 percent pebbles. Slightly effervescent, moderately alkaline abrupt smooth boundary.
- C1—3 to 5 inches, light brownish gray (2.5Y 6/2) gravely sandy loam, very dark grayish brown (2.5Y 3/2) moist imoderate thick platy structure, slightly hard, very friable, slightly sticky and nonplastic, few medium roots, many fine vesicular pores 20 percent pebbles, strongly effervescent; moderately alkaline, abrupt smooth boundary.
- C2ca 5 to 14 inches, grayish brown (2.5Y 5/2) extremely gravely light sandy loam, very dark grayish brown (2.5Y 3/2) moist, single gram; loose nonsticky and nonplastic, few medium roots and many very fine and fine roots, many fine and medium interstitia, pores, 65 percent peobles, thin coatings of time on peobles, strongly effervescent strongly alkaline labrupt smooth boundary.

C3ca—14 to 42 inches, grayish brown (2.5Y 5/2) extremely gravelly loamy coarse sand with strata of pebbles, very dark grayish brown (2.5Y 3/2) moist single grain; loose, nonsticky and nonprastic many very fine and fine roots, many fine and medium interstitial pores, 60 percent pebbles; thin coatings of lime on pebbles, strongly effervescent, strongly alkaline, gradual smooth boundary.

C4ca—42 to 60 inches grayish brown (2.5Y.5/2) stratilied extremely gravelly coarse sand, sand, and loamy sand, very dark grayish brown (2.5Y.3/2) moist, single grain, loose, nonsticky and nonprastic lew very fine and fine roots, many line and medium interstitial pores, 60 percent pebbles, thin coallings of lime on pebbles, violently effervescent, strongly afkaline.

The particle size control section is stratified very gravelty sand to extremely gravelty loamy coarse sand and averages 50 to 70 percent rock fragments. Reaction is neutral to strongly alkaline in some pedons all or part of the A horizon has been removed by water erosion. Thin bands of soft, weathered shale are common in the C horizon in some pedons.

Bluewing Variant

The Bluewing Variant consists of very deep, we drained very slowly permeable soils on dissected basin floors. These soils formed in lacustrine sediment derived from mixed rock sources. Stopes are 2 to 6 percent.

Typical pedon of Bluewing Variant clay, 2 to 8 percent slopes, about 750 feet east and 600 feet south of the northwest corner of sec. 17 T. 12 N. R. 24 E.

- A1—0 to 3 inches, light brownish gray (10YR 6/2) clay dark grayish brown (10YR 4/2) moist, strong very fine granular structure slightly hard, friable, very sticky and slightly plastic many very fine interstitia pores, moderately alkaline; abrupt smooth boundary
- C1—3 to 9 inches, brownish gray (10YR 6/2) clay dark grayish brown (10YR 4/2) moist, moderate medium angular blocky structure: very hard, firm, very sticky and very piastic, few fine and very fine roots, many very fine tubular pores, few fine gypsum masses, moderately alkaline: clear smooth boundary
- C2—9 to 27 inches, light brownish gray (10YR 6/2) clay dark grayish brown (10YR 4/2) moist; thinly bedded ake sediment, slightly altered by weathering, very hard, firm very sticky and very plastic, many medium roots and common fine and very fine roots in cracks and between plates, neutral, clear smooth boundary.
- C3—27 to 60 inches, fight brownish gray (10YR 6/2, clay, dark grayish brown (10YR 4/2) moist, thinly bedded lake sediment; few medium and coarse

black (10YR 2/1) manganese stains, extremely hard, firm, very sticky and very plastic neutral

The particle size control section is clay or sity clay that is 40 to 60 percent clay. The reaction is neutral to moderately alkaline. The profile generally is noneflervescent, but it is slightly effervescent in a few areas.

Bradshaw Series

The Bradshaw series consists of deep, well drained moderately rapidly permeable soils on mountainsides. These so is formed in residuum and colluvium derived from andesite. Slopes are 15 to 50 percent.

Typical pedan of Bradshaw extremely stony loam, in an area of Bradshaw-Hartig association about 300 feet east and 3 200 feet north of the southwest corner of sec. 2, T. 15 N. R. 22 E.

A11—0 to 3 inches, grayish brown (10YR 5/2) extremely story oam, very dark grayish brown (10YR 3/2) moist weak medium granular structure soft, very friable, nonsticky and nonplastic common fine and very kine roots, many medium and fine interstitial pores, 25 percent pebbles, 20 percent cobbles, and 20 percent stones ineutral abrupt wavy boundary.

A12—3 to 8 inches gray shiprown (10YR 5/2) very stony loam, dark prown (10YR 3/3) moist imoderate medium granular structure, slightly hard, very friable slightly sticky and slightly plastic, common medium roots and many fine and very fine roots, many fine and very fine interstitial pores. 25 percent pebbles 20 percent cobbles, and 15 percent stones, neutral clear wavy boundary.

A13—8 to 15 inches brown (10YR 5/3) extremely story barn, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure, slightly hard, very friable, slightly slicky and slightly prastic common coarse and medium roots and many fine and very fine roots, many fine and very fine tubular poresist 25 percent peobles, 25 percent cobbles, and 15 percent stones ineutral clear wavy boundary.

82—15 to 24 inches, pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist, moderate medium subangular blocky structure, slightly hard, very frable, nonsticky and nonplastic; few coarse roots, common medium roots, and many fine and very fine roots, many fine and very fine tubular pores, 26 percent pebbles, 25 percent cobbles, and 2 percent stones; neutral; clear wavy boundars.

C1—24 to 28 inches, pale brown (10YR 6/3) extremely cobbly loam, brown (10YR 4/3) moist; massive hard, fnable nonsticky and nonplastic; few medium roots, common fine roots, and many very fine interstitial pores. 35 percent pebbles, 30 percent cobbles, and 2 percent stones; neutral, clear wavy boundary.

C2—28 to 43 inches: light gray (10YR 7/2) extremely cobbly loam, brown (10YR 5/3) moist: massive, hard, fnable inonstickly and nonplastic, few medium roots, common fine roots and many very fine roots, common very fine tubular pores; 35 percent pebbles. 30 percent cobbles, and 2 percent stones, neutral labrupt wavy boundary.

R-43 inches fractured andesite

The molic epipedon is 10 to 20 inches thick. The solum is 24 to 32 inches thick. The particle size control section averages extremely cobbly fine sandy loam or extremely cobbly loam that is 60 to 80 percent rock fragments and 12 to 18 percent clay. Depth to bedrock is 40 to 60 inches or more.

Burnborough Series

The Burnborough series consists of very deep, we drained, moderately permeable soils on his and mountainsides. These soils formed in residuum and collusium derived from andesite and rhyolite. Slopes are 30 to 50 percent.

Typical pedon of Burnborough very stony loam, n an area of Burnborough G ean association about 1 650 feet south of benchmark 6652 T 8 N , R 24 E

A11—0 to 3 inches dark grayish brown (10YR 4/2) very story loam very dark brown (10YR 2/2) moist weak fine granular structure soft, very friabio nonsticky and honpiastic, common very fine roots, many very fine interstitial pores, 40 percent pubbles 15 percent cobbles, and 20 percent stones, neutral abrupt smooth boundary.

A12—3 to 7 inches dark grayish brown (10YR 4/2) extremely gravelly pam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very fnable nonsticky and nonplastic, common fine and many very fine interstitial pores. 40 percent pebbles, 10 percent cobbies, and 10 percent stones neutral clear wavy boundary.

B1t—7 to 10 inches, brown (10YR 5/3) very gravely loam, dark brown (10YR 3/3) moist, weak medium subangular blocky structure is ightly hard very fnable slightly sticky and slightly plastic, common medium and fine roots and many very fine roots common fine and very fine tubular porest common very thin day bridges. 40 percent pebbles. 5 percent code es, and 5 percent stones ineutral diear wavy boundary.

B21t—10 to 21 inches, brown (10YR 5/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist, moderate medium and fine subangular blocky structure, hard finable, sticky and plastic, few coarse roots and common medium, fine, and very fine roots, common fine and many very fine tubular.

pores, continuous thin and very thin clay bridges, 40 percent peobles, 10 percent cobbies, and 5 percent

stones; neutral, gradual wavy boundary

B22t—21 to 42 inches, brown (10YR 5/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist, moderate medium and fine subangular blocky structure; very hard friable, sticky and plastic, lew fine and common very fine roots, few fine and common very fine tubular pores, continuous thin clay bridges and common thin and moderately thick clay films on peds and lining pores, 40 percent pebbles, 10 percent cobbles, and 5 percent stones, neutral, gradual, wavy boundary.

C1—42 to 60 inches pale brown (10YR 6/3) very grave ly loam dark brown (10YR 4/3) moist massive, hard very frable, nonstickly and honprastic. lew line and very fine roots, few fine and very fine tubular pores, 40 percent peobles, 10 percent cobbles, and 5 percent stones, neutral

The molic epipedon is 10 to 20 inches thick and no udes the B1t horizon.

The solum is 40 to 80 inches thick. Depth to bedrock is 60 to 80 inches. Reaction is slightly acid or neutral.

The B2t horizon is very gravely loam or very gravely cay loam that is 35 to 60 percent rock fragments and 18 to 35 percent clay.

The C hor zon is present in most pedons

Cagle Series

The Cagle series consists of moderately deep, well drained, slowly permeable soils on mountains. These soils formed in colluvium and residuum derived from andesite. Slopes are 15 to 50 percent.

Typical pedon of Cagle very slony day loam, in an area of Cagle-Nosrac association, about 1,050 feet north and 400 feet east of the southwest corner of sec. 5. T

14 N . R 22 E

A1—0 to 2 inches grayish brown (10YR 5/2) very story clay loam, very dark grayish brown (10YR 3/2) moist, moderate fine granular structure; soft, very friable, sticky and plastic many fine and very fine roots, many fine and very fine interstitial pores, 30 percent pebbles, 10 percent cobbles, and 15 percent stones, neutral; abrupt wavy boundary.

B211—2 to 15 inches brown (10YR 4/3) gravelly clay dark brown (10YR 3/3) moist, strong medium subangular blocky structure; very hard, very firm, very sticky and very plastic common medium, fine and very fine roots many fine and very fine and common medium tubular pores; many thin and moderately thick clay films on peds and lining pores. 20 percent pebbies; neutral, clear wavy boundary

B221—15 to 30 inches, light ye lowish brown (10YR 6/4) very gravelly clay yellowish brown (10YR 5/4) moist strong medium subangular blocky structure.

very hard, very firm, very sticky and very plastic: few medium roots and common fine and very fine roots, many fine and very fine tubular pores: common very thin clay films on peds and lining pores, 25 percent pebbles, 10 percent cobbles, and 5 percent stones, neutral labrupt wavy boundary

Cr-30 inches weathered andesite

The mollic epipedon is 7 to 18 inches thick. Thickness of the solum and depth to soft bedrock are 20 to 40 inches. Reaction is slightly acid to midly alkaline.

The upper part of the B2t horizon is gravely day or grave by clay toam, and the lower part is very grave y clay, extremely gravely clay, or very cobbly day. The horizon averages 35 to 50 percent day and 15 to 35 percent rock fragments.

Celeton Series

The Celeton series consists of very shallow, somewhat excessively drained, rapidly permeable soils on uplands. These soils formed in residuum derived from diatomaceous earth. Stopes are 8 to 30 percent.

Typical pedon of Celeton very cobbly sandy loam, 8 to 30 percent slopes, about 1 000 feet south and 1,150 feet west of the northeast corner of sec. 1 T. 19 N. R. 25 E.

- A1—0 to 2 inches, light brownish gray (10YR 6/2) very cobbly sandy loam, dark gray ship brown (10YR 4/2) moist massive soft very friable, nonsticky and nonplastic, few very fine roots, many very fine interstitial pores, 25 percent peobles and 15 percent cobbles, strongly effervescent, strongly alkaline clear smooth boundary.
- C1—2 to 9 inches, white (10YR 8/1) sandy loam with about 85 percent platelets of soft diatomaceous earth fragments less than 1 millimeter thick, massive soft, very finable industickly and nonplastic few fine and many very fine roots: many fine and very fine interstitial poresistrongly effervescent strongly alkaline clear smooth boundary.
- Cr—9 to 50 inches, white (10YR 8/1), unweathered platy diatomaceous earth, root mats occur between plates in the upper few inches of the horizon noneffervescent.

Depth to the para thic contact is 4 to 14 inches Reaction is mildly alkaline to strongly alkaline

The C1 horizon is 80 to 90 percent diatomaceous earth fragments, most of which are soft, and it is 5 to 15 percent clay.

Charlebois Series

The Charlebois series consists of very deep, well drained, moderately slowly permeable soils on alluvial fans and take terraces. These soils formed in ailuvium

derived from andesite with components of pyrociastics and voicanic ash. Slopes are 0 to 4 percent.

Typical pedon of Charlebois toam 0 to 2 percent signs, about 4,500 feet east of the northwest corner of sec. 18, T. 10 N., R. 24 E.

- A1—0 to 2 inches grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist, moderate fine granular structure, soft, friable, slightly sticky and slightly plastic, common very fine roots, many fine and very fine interstitial pores ineutral abrupt smooth boundary.
- Bit 2 to 8 inches gray shibrown (10YR 5-2) toam, dark brown (10YR 3/3) moist, weak fine subangular blocky structure, slightly hard triable, sticky and plastic, few fine and common very line roots, few line and many very tine tubular pores, few thin clay lims in pores, neutral, clear wavy boundary.
- B211—B to 14 inches, grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist, moderate medium and fine angular blocky structure, hard finable sticky and plastic, few fine and many very fine roots, common fine and many very fine tubular pores, common thin clay films in pores and on peds, mildly alkaline, clear wavy boundary.
- B22t—14 to 19 inches, pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist, weak medium subangular blocky structure; hard, friable, sticky and plastic, few fine and common very fine roots, many I he and very fine tubular pores, common thin clay I mail ning pores and on peds, mildly a kaline abrupt wavy boundary.
- C1sica—19 to 36 inches, kight brownish gray (10YR 6/2) loam, dark gray sh brown (10YR 4/2) moist, massive hard, fnable, slightly sticky and plastic, few fine and many very fine roots, few fine and many very fine tubular pores, about 30 percent firm and brittle durinodes, slightly effervescent, moderately alkaline, gradual wavy boundary.
- C2ca—36 to 60 inches paie brown (10YR 6/3) loam. dark grayish brown (10YR 4/3) moist, massive, stightly hard, very friable slightly sticky and slightly plastic: few fine and many very fine roots, few fine and many very fine tubular pores, strongly effervescent, moderately alkaline.

The B2t horizon is 27 to 35 percent clay and less than 15 percent rock fragments. Reaction is heutral or mildly alkaline.

The Cisica horizon is 20 to 40 percent dunnodes and 15 to 22 percent day. Reaction is moderately alkaline or strongly alkaline.

Chill Series

The Chil senes consists of very shallow wer drained, moderately slowly permeable soils on low hills. These

soils formed in residuum derived from granitic bedrock Stopes are 4 to 30 percent

Typical peden of Chill grave y sandy loam, 8 to 15 percent slopes, in an area of Chill association, about 1 200 feet north and 2 500 feet east of the southwest corner of sec. 22. T. 17 N., R. 24 E.

- A1—0 to 3 inches, light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist, massive, soft, very frable, nonsticky and nonplastic, few very fine roots, many fine and very fine interstitial pores. 30 percent line pebbles, neutral abrupt smooth boundary.
- 921 3 to 7 inches, brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 4/3) moist weak medium subangular blocky structure, hard, friab a slightly sticky and slightly plastic many fine and very line roots, common fine and very fine tubular pores 25 percent pebbies, continuous very thin to moderately thick clay films on peds and lining pores, neutral abrupt wavy boundary.
- Cr—7 inches weathered grantic bedrock with root mate and thin clay films linking fracture planes hardness increases with depth

Thickness of the solum and depth to a paralithic contact is 6 to 14 inches. The control section averages 18 to 27 percent clay and 15 to 35 percent rock fragments, mostly line pebbles. The B21 horizon has 25 to 35 percent clay. Reaction is neutral or mildly alkaine throughout the profile.

Cleaver Series

The Cleaver senes consists of shallow well drained slowly permeable soils on old alluvial fans. These soils formed in alluvium derived from basic igneous rock. Slopes are 2 to 30 percent.

Typical pedon of Cleaver grave ly sandy loam, 2 to 4 percent slopes, about 200 feet east and 50 feet south of the northwest corner of sec. 19, T 16 N R 23 E

About 85 percent of the surface is covered with a desert pavement 75 percent of which is pebbles and 10 percent is cobbles.

- At—0 to 2 inches, light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist, massive; soft, very finable inonsticky and nonplastic, many very fine interstital pores. 50 percent pebbles, slightly effervescent, strongly alkatine abrupt smooth boundary.
- A2—2 to 3 inches, light gray (10YR 7/1) doam gray/sh brown (10YR 5/2) moist, thin platy structure; soft, very finable, slightly sticky and slightly plastic; few very fine roots, many fine and very fine vesicular pores, strongly effervescent, strongly alkaline; abrupt wavy boundary

B2t—3 to 8 nches, brown (7.5YR 5/4) gravelly clay loam dark brown (7.5YR 4/4) moist, weak medium and coarse subangular blocky structure; hard triable sticky and plastic; common medium and very fine roots and few fine roots common very fine and line tubular pores; continuous thin and moderately thick day bridges 20 percent peobles, mildly alkaline clear wavy boundary.

B3t—8 to 11 inches, light brown (7 SYR 6/4) gravely roam, brown (7 SYR 4/4) moist, massive, slightly hard very friable, slightly slickly and slightly plastic common medium and very fine roots and few fine roots. The fine and many very fine tubular pores, common thin clay bridges, 25 percent pebbles, ame on undersides of pebbles, strongly effervescent neutral, abrupt wavy boundary.

C1sicam—11 to 21 inches, white indurated duripan broken in places by krotovinas, strongly effervescent, very strongly a kaline, gradual wavy

25(3) 211 27 this will be a duripan, violantly effervescent, strongly alkaline

Thickness of the solum and depth to the duripan are 10 to 20 inches

The 8t horizon averages gravelly loam or gravely clay loam that is 25 to 35 percent clay and 15 to 35 percent rock fragments. Reaction is neutral to moderately alkaline.

Dalzell Series

The Daizer series consists of moderately deep, somewhat poorly drained, moderately slowly permeable soils on ake terraces. These soils formed in facustrine material derived from mixed rock sources. Slopes are 0 to 4 percent.

Typica pedon of Daizell clay loam 0 to 2 percent slopes, about 25 feet south and 2 000 feet west of the northeast corner of sec. 15, T. 12 N. R. 23 E.

A1—0 to 3 inches pale brown (10YR 6/3) clay toam, brown (10YR 4/3) moist, massive hard, friable sticky and slightly plastic; many fine and very fine roots common very fine tubular pores, strongly effervescent, strongly a kaline; clear wavy boundary

B21t—3 to 10 inches: grayish brown (2.5Y 5/2) sity day loam brown (10YR 4/3) moist weak fine prismatic structure: slightly hard, friable, stocky and slightly plastic; common very fine roots, few very fine and common very fine tubular pores, common thin clay fins on peds and lining pores, strongly effervescent, strongly alkaline: clear wavy boundary.

B22t—10 to 17 inches, light gray (10YR 7/2) sity clay oam, light yellowish brown (2.5Y 6/4) moist, few coarse distinct brown (10YR 4/3) from mottles, weak medium prismatic structure; hard, fnable, sticky and slightly plastic, few very fine roots; few very fine

tubular pores, many thin day films on peds and lining pores, strongly effervescent, very strongly alkaline, gradual smooth boundary

B3tsica: 17 to 21 inches, light brownish gray (2.5Y 6/2) sandy loam, light yellowish brown (2.5Y 6/4) moist common coarse distinct brown (10YR 4/3) iron mottles, massive hard, firm, nonsticky and nonpastic, few very fine roots, few fine tubular pores, many thin clay films lining pores, 40 percent 1/4, to 1/2 inch extremely hard cylindrical durinodes, strongly effervescent, moderately a kaline, clear smooth boundary.

C1s/cam—21 to 23 inches, very pale brown (10YR 7/3) strongly silica-cemented dunpan, pale brown (10YR 6/3) and dark brown (10YR 3/3) moist massive extremely hard, extremely firm, nonsticky and nonplastic few fine tubular pores, strongly effervescent, moderately alkaline; clear smooth boundary.

C2s/cam—23 to 28 inches, light gray (10YR 7/1) strongly silica-cemented dunpan ipaie brown (10YR 6/3) and brown (10YR 4/3) moist, massive, very hard, very time, nonsticky and nonplastic few very fine tubular pores, strongly effervescent, moderately alkaine, clear smooth boundary.

C3—28 to 46 inches, light gray (10YR 7/1) sandy loam, very pale brown (10YR 7/3) and ye low ship brown (10YR 5/4) moist massive hard, friable honsticky and nonplastic few very line tubular pores, strongly effervescent strongly a kaline clear smooth.

C4—46 to 52 inches, light olive brown (2.5Y 5/4) sandy loam brown (10YR 5/3) moist, massive hard, thable, nonsticky and honplastic, common very fine interstibal pores, strongly effervescent; very strongly alkaline; clear wavy boundary.

C5ca—52 to 63 inches, light olive brown (2.5Y 5/4) loamy sand, brown (10YR 5/3) moist; massive soft very fnable, nonsticky and horiplastic, many very fine interstitial pores, 20 percent strongly demented me nodules, strongly effervescent, very strongly a kaline.

Thickness of the solum and depth to the duripan are 20 to 40 inches

The Bt horizon is heavy sandy loam to sifty clay dam and averages 20 to 35 percent clay. Content of exchangeable sodium is 15 to 35 percent. Reaction is strongly a kaline or very strongly alkaline.

Delp Series

The Deip series consists of very deep, well drained moderately rapidly permeable soils on partially stabilized dunes. These soils formed in ectian sand derived dominantly from grantic rock. Slopes are 0 to 15 percent.

Typical pedon of Delp loamy sand, in an area of Delp-Lox association, about 400 feet west and 110 feet north of the southeast corner of sec. 32, T. 13 N., R. 24 E.

- A1 0 to 1 inch, light gray (10YR 7/2), uncoated windsorted loamy sand, light brownish gray (10YR 6/2) moist, single grain; loose, nonsticky and nonplastic many very fine interstitial pores, slightly elfervescent, moderately alkaline, abrupt smooth boundary.
- B1—1 to 5 nches, light brown shigray (10YR 6/2) and ght gray (10YR 7/2) sandy foam brown (10YR 5/3) moist, moderate thin platy structure soft, very frishe, nonsticky and nonplastic, common very fine roots, few fine tubular pores and many very fine interstital pores few tame facility in meters thick with common thin clay bridges, strongly efferivescent strongly alkaine, abrupt wavy boundary.
- B2t—5 to 11 inches light gray (10YR 7/2) sandy loam with pare brown (10YR 6/3) light sandy clay loam ame as 10 to 15 mill meters thick, brown (10YR 5/3) moist, weak coarse prismatic structure, sightly hard very friable slightly sticky and sightly plastic few fine and many very fine roots, many very interstitial pores, continuous thin and moderately thick clay bridges between lametiae strongly effervescent, very strongly alkaline abrupt wavy boundary.
- B3—11 to 19 inches light gray (10YR 7/2) loamy sand with pale brown (10YR 6/3) light sandy diay loam lameilae 1 to 5 m meters thick grayish brown (10YR 5/2) and brown (10YR 5/3) moist, massive soft very friable nonsticky and slightly plastic, few tine and many very tine notes tial pores, common thin diay bridges between ameilae strongly effervescent, very strongly also ne, clear wavy boundary.
- C1—19 to 27 inches light gray (10YR 7/2) toamy sand gray shibrown (10YR 5/2) moist, massive; soft, very friable, nonsticky and homplastic, few fine and very fine roots, many very fine interstitial pores, strongly effervescent, very strongly alkaline; clear wavy boundary.
- C2—27 to 32 inches, light gray (10YR 7/2) cross-bedded loamy coarse sand with light brownish gray (10YR 6/2) ame as 1 to 5 millimeters thick at textural breaks in the cross bedding, grayish brown (10YR 5/2) moist: massive, soft, very fnable nonstickly and nonplastic, few very fine roots, many very fine interstitial pores, common thin clay bridges between lamellae, strongly effervescent, very strongly a.ka. ne; abrupt wavy boundary
- C3—32 to 41 inches light gray (10YR 7/2) loamy fine sand, light brownish gray (10YR 6/2) moist, massive: soft, very fnable, nonsticky and nonplastic few fine and very fine roots, many very fine

interstital pores, strongly effervescent, very strongly alkaline; clear wavy boundary

C4—41 to 60 inches, light gray (10YR 7/2) loamy fine sand gray shiprown (10YR 5/2) moist, massive, soft, very finable nonsticky and nonplastic; few fine and very fine roots, many very fine interstitial porestew thin lamellae with thin clay bridges, strongly effervescent; very strongly alkaline.

Thickness of the solum is 15 to 35 inches

The B2t horizon has lame tae of sandy clay loam or sandy loam in a matrix of sandy loam or loamy sand and averages 5 to 15 percent clay. Reaction is strongly atkaline.

The C horizon is loamy fine sand to sand. Reaction is strongly alkaline or very strongly alkaline.

Devada Series

The Devada senes consists of shalow, well drained, slowly permeable soils on low hit sland mountains. These soils formed in residuum derived from andes to and rhyoite. Slopes are 4 to 50 percent.

Typical pedan of Devada very cobbly loam, 15 to 50 percent slopes, in an area of Devada-Rock outcrop association about 4 miles south and 1 mile east of Dayton, about 150 feet north of the center of sec. 7 T 15 N. R. 22 E.

- A11—0 to 3 inches grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist, weak line granular structure, soft, very friable, slightly sticky and slightly plastic, many fine and very line roots, many very fine vesicular pores 20 percent gravel and 15 percent cobbles, neutral, clear smooth boundary.
- A12—3 to 5 inches, dark grayish brown (10YR 4, 2) very cobbly loam, very dark grayish brown (10YR 3/2, moist; moderate medium subangular blocky structure; slightly hard, friable slightly sticky and slightly plastic; few medium roots and many fine and very fine roots, many fine and very fine tubular pores; 20 percent gravel and 15 percent cobbles neutral; abrupt smooth boundary
- B211—5 to 7 inches, dark grayish brown (10YR 4/2) gravelity clay loam, very dark grayish brown (10YR 3/2) moist, moderate medium subangular blocky structure; hard, firm, sticky and plastic: few medium roots and common fine and very fine roots; many fine and very fine hubular pores, continuous thin and moderately thick clay films on peds; 15 percent gravel and 5 percent cobbles, neutral; abrupt smooth boundary
- B22t—7 to 11 inches brown (10YR 4/3) gravelly day, dark brown (10YR 3/3) moist, strong medium subangular blocky structure; hard, very firm, very sticky and very plastic, few medium, fine, and very

fine roots, many fine tubular pores, continuous moderately thick pressure faces, 15 percent gravel and 5 percent cobbles, neutral; clear smooth

boundary

B23t-11 to 18 inches brown (10YR 5/3) clay, dark yellowish brown (10YR 3/4) moist, strong coarse subangular blocky structure; very hard, very firm. very sticky and very plastic; few medium and line roots few medium and common fine tubular pores. continuous moderately thick pressure faces, 10 percent grave, and 2 percent cobbies, neutral irregular wavy boundary

R 18 inches fractured andesite

The molic epipedon is 7 to 20 inches thick and includes all or part of the argilic horizon. Thickness of the solum and depth to bedrock are 12 to 20 inches. Reaction is slightly acid to neutral throughout

The B2t horizon is dominantly clay or gravelly clay with thin layers of heavy clay loam. It has 40 to 60 percent.

c ay and less than 30 percent rock fragments.

Devils Series

The Davils series consists of moderately deep, we drained alowly permeable soils on plateaus. These soils formed in residuum derived from basic igneous rocks. Signes are 4 to 30 percent

Typical padon of Devis very cobby loam, 4 to 15 percent slopes in an area of Glean-Devis association. 2 900 feet south and 1,200 feet west of the northeast

corner of sec 13, T 8 N R 23 E

A11—0 to 1 inch, grayish brown (10YR 5/2) very cobbly. dam, very dark grayish brown (10YR 3/2) moist. moderate medium and thin platy structure, slightly hard very friable honslicky and slightly plastic. common very fine roots, many fine and very fine vesicular pores, 30 percent peobles, 25 percent cobbies, and 5 percent stones, neutral abrupt

smooth boundary

A12—1 to 3 inches, grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2). moist, moderate fine subangular blocky structure slightly hard very friable nonsticky and slightly plastic; many fine and very fine roots, many fine and very fine vesicular pores, 20 percent peobles, 15 percent cabbles, and 5 percent stones, neutral c ear smooth boundary

A13-3 to 7 inches, brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist, moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots, many very fine interstitial pores 20 percent pebbles, 15 percent cobbies, and 5 percent stones, neutral iclear smooth boundary

B1t-7 to 9 inches, brown (10YR 4/3) cobbly loam, dark brown (10YR 3/3) moist, moderate medium and fine subangular blocky structure, hard, friable, slightly sticky and slightly plastic, few medium and common fine roots, many fine and very fine tubular pores, 20 percent pebbles, 10 percent cobbles, and 5 percent stones, few thin diay films lining pores, neutral: diear smooth boundary

321t-9 to 18 inches, yellowish brown (7.5YR 5,4) yerv grave ly clay loam, dark yellowish brown (7.5YR 4/4). moist, strong medium subangular blocky structure; very hard, firm, sticky and plastic, few medium and common fine roots, common very fine tubular pores, 25 percent pebbles, 10 percent cobbles, and 5 percent stones, many moderately thick day films. lining pores and on peds ineutral clear wavy

boundary

3221--- 18 to 22 inches, velicitish brown (10YR 5/4) very gravely clay loam, dark yellowish brown (10YR 4/4). moist, moderate medium angular blocky structure. very hard, firm, slicky and plastic, few modium and fine roots, few line tubular pores, 30 percent pebbles, 10 percent cobbles, and 5 percent stones. many moderately thick clay films ining pores and on peds neutral abrupt wavy boundary

Cr-22 to 30 inches, soft andesite with some clay coatings and root mats in fractures, gradual wavy

boundary

R-30 inches, hard andesite

The mothe epipedon is 7 to 12 inches thick. Depth to the paralithic contact is 20 to 35 inches. Hard bedrock is at a depth of 22 to 40 inches. Reaction is sightly acid or neutra

The Bt honzon averages very grave y clay loam and 27 to 35 percent clay. The horizon has 35 to 60 percent. rock fragments, mostly pebbles

Devils Variant

The Devils Variant consists of moderately deep, welldrained, moderately slowly permeable soils in concave areas of plateaus. These soils formed in residuum derived from granibo bedrock. Slopes are 4 to 15. percent

Typical pedon of Devils Variant gravelly loam, in an area of Ravenei Vanant Devris Variant association. about 1 900 feet west of benchmark 8468 T 9 N., R 26

A11-0 to 4 inches, grayish brown (10YR 5/2) grave, y oam, very dark grayish brown (10YR 3/2) mors. weak coarse granular structure: soft, very friable, nonsticky and nonprastic; few medium roots and many fine and very fine roots, few fine and many very fine interstitia, pores, 20 percent fine pebbles, slightly acid; clear smooth boundary

A12-4 to 10 inches, brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist, weak coarse

granular structure, slightly hard, very finable nonsticky and nonplastic, few medium roots and many fine and very fine roots, many fine and very fine tubular pores, 20 percent fine pebbles and 5 percent cobbles, neutral; clear smooth boundary.

B1(—10 to 16 inches, light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist, weak line and medium subangular blocky structure; hard, friable, sticky and slightly plastic common time and very fine roots, common time and very fine tubular pores, common thin clay bridges, 25 percent peobles, neutral iclear smooth boundary.

B2t—16 to 24 nches, brown (7.5YR 5/4) gravelly sandy clay loam, dark brown (7.5YR 4/4) moist, weak medium and coarse subangular blocky structure hard, frieble, sticky and plastic, common fine and very fine roots, few line and very fine tubular pores, continuous thin and moderately thick clay films on peds and lining pores, 20 percent fine pebbies neutral iclear smooth boundary.

B3t—24 to 30 inches, brown (7.5YR 5/4) gravelty sandy citiby oam, dark brown (7.5YR 4/4) moist, weak fine and medium subangular blocky structure, hard triable sticky and slightly plastic, few fine and very fine roots, few line and very fine tubular pores, continuous thin and moderately thick clay films on pods and uning pores, 30 percent line pebbles neutral, clear smooth boundary.

Cr—30 to 40 inches soft weathered grante with clay coallings and some roots in fractures.

Thickness of the solum and depth to the paral thic contact are 20 to 40 inches. The profile is sightly acid or neutral. The Bt horizon is gravely sandy clay loam or gravely clay loam that is 25 to 35 percent clay.

Dia Series

The Dia series consists of very deep, somewhat poorly drained, moderately permeable soils on alluvial fans. lake pia ns, flood plains, and low stream terraces. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Dia loam, about 1,300 feet north and 1,700 feet east of the southwest corner of sec. 15, T 14 N R 25 E

Ap—0 to 8 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist, weak medium subangular blocky structure: very hard frable, sticky and prastic: many fine and very fine roots, many fine and very fine tubular pores, neutral: clear smooth boundary

A12 8 to 20 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; common fine distinct dark yellowish brown (10YR 3/4) iron mottles, weak medium subangular blocky structure.

hard, very friable sticky and plastic common fine and very fine roots, many fine and very fine tubular pores neutral abrupt wavy boundary

biC1—20 to 24 inches, pale brown (10YR 6/3) loamy sand brown (10YR 4/3) moist, common fine distinct yellowish brown (10YR 5/4) iron mottles and common fine faint dark yellowish brown (10YR 4/4) iron mottles massive soft, loose nonsticky and nonplastic common fine and very fine roots many fine and very fine tubular and interstit all pores neutral iclear wavy boundary.

IC2—24 to 60 inches light grayish brown (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist: single grain, loose, nonsticky and nonplastic, many fine and very line interstitial pores ineutra.

The molic epipedon is 7 to 20 notes thick. Depth to the contrasting sandy substratum is 20 to 40 notes. The upper part of the control section is 18 to 25 percent clay and less than 25 percent rock fragments. Reaction is neutral to middly alkaline. Reaction of the sandy lower part of the control section is neutral to moderately alkaline.

Dithod Series

The Orthod series consists of very deep isomowhat poorly drained imoderately slowly permeable solls on low stream terraces, alluvial hats, and flood plains. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Dilhod loam about 1 300 feet north and 2 500 feet east of the southwest corner of sec. 15 T 14 N R 25 E

Ap—0 to 11 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist, weak medium and coarse subangular blocky structure; very hard linable, slightly sticky and plastic, many fine and very fine roots, many fine and very fine tubular pores, neutral, clear smooth boundary.

C1—11 to 20 inches, light brownish gray (10YR 6/2) sittleam, dark grayish brown (10YR 4/2) moist, common fine prominent dark brown (7.5YR 3/4) ron mottles, massive very hard, very fnable, silightly sticky and slightly plastic, many fine and very fine roots: few medium and many fine and very fine tubular pores, neutral, abrupt smooth boundary

IC2—20 to 32 inches, grayish brown (10YR 5/2) sandy clay feam, very dark grayish brown (10YR 3/2) moist, common fine distinct dark brown (10YR 4/3) iron mottles, massive, hard linable, sticky and slightly plastic few very fine roots; many fine and very fine tubular and interstitial pores, neutral clear wavy boundary.

IIC3—32 to 42 inches, light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist

common fine prominent strong brown (7.5YR 4/6) iron mottles, massiver very hard, very triable, slightly sticky and slightly plastic, few very fine roots, common fine and very fine tubular pores, neutral abrupt smooth boundary.

IVC4 -42 to 60 inches, pale brown (10YR 5/3) sandy loam brown (10YR 5/3) moist common medium faint yellowish brown (10YR 5/4) iron mottles massive: slightly hard, very friable, nonsticky and nonplastic many very fine interstital pores, neutral

Thickness of the mollic epipedon is 10 to 18 inches. The control section is stratified day loam to loamy fine sand that averages 18 to 25 percent day. Reaction of the C horizon is neutral to moderately alkaline.

Drit Series

The Drit series consists of very deep, well drained moderately rapidly permeable so s on mountainsides. These soils formed in collusium derived from granitic rocks. Stopes are 15 to 75 percent.

Typical pedon of Drit coarse sandy loam, 30 to 50 percent slopes, in an area of Trid-Ord association, 600 feet north and 2,700 feet east of the southwest corner of sec. 12 T. 14 N. P. 22 E.

- A11—0 to 4 inches gray shibrown (10YR 5/2) coarse sandy loam, very dark gray (10YR 3/1) moist single grain, toose nonsticky and nonplastic many very tine interstitial pores 10 percent fine pobbles, sightly acid, abrupt smooth boundary.
- A12—4 to 9 nches, dark grayish brown (10YR 4/2) coarse sandy loam, very dark grayish brown (10YR 3/2) moist leak fine subangular blocky structure soft, very fnable, nonsticky and nonptastic few fine and common very fine interstitial pores, 10 percent fine pebbles, neutral; clear smooth boundary.
- A13—9 to 25 inches, brown (10YR 5/3) gravelly coarse sandy loam, dark brown (10YR 3/3) moist; weak medium and fine subangular blocky structure slightly hard ivery friable, nonsticky and nonplastic few coarse roots and common medium, fine and very fine roots; few fine and very fine interstital pores; 25 percent pebbles, neutral, clear smooth boundary.
- B2—25 to 35 inches: paie brown (10YR 6/3) very graveily coarse sandy loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure: slightly hard, very finable, nonsticky and nonplastic. few very fine roots, many very fine interstitia, pores. 35 percent pebbies, 15 percent cobbies, and 5 percent stones, neutral clear smooth boundary.
- C1—35 to 60 inches, pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist, massive slightly hard, very finable, nonsticky and nonplastic, few very fine roots, few very fine

tubular pores, 40 percent pebbles and 15 percent cobbles; neutra

Thickness of the mollic epipedon is 20 to 38 inches. Reaction is slightly acid or neutral. The control section is coarse sandy loam sandy loam, or fine sandy loam that is 40 to 75 percent rock fragments. It averages 8 to 18 percent clay.

Duco Series

The Duco series consists of shallow well drained moderately slowly permeable solls on convex ridges and back slopes of mountains. These soils formed in residuum derived from andesite. Slopes are 15 to 50 percent.

Typical pedon of Duco extremely stony loam, in an area of Flex Duco association, 800 feet south and 1,300 feet bast of the northwest corner of sec. 26. T. 19 N. R. 24 E.

- A11—0 to 2 inches grayish brown (10YR 5/2) extremely story loam, very dark grayish brown (10YR 3/2) moist, moderate medium and fine subangular blocky structure, soft livery frable nonsticky and nonplasticew line and very fine roots common fine intersitial and vesicular poresity 5 percent pebbles in 5 percent cobbies, and 30 percent stones, neutral, abrupt smooth boundary.
- A12—2 to 4 inches, gray-sh brown (10YR 5/2) very story loam, dark brown (10YR 3/3) moist, moderate thick and medium piaty structure, slightly hard fnable, nonsticky and nonplastic common medium roots and many fine and very fine roots, many fine and very fine vesicular pores, 20 percent pebbles 5 percent cobbles, and 10 percent stones, neutral clear smooth boundary.
- B11—4 to 7 inches, brown (10YR 4/3) very cobbly ght sandy day loam, dark brown (10YR 3/3) moist: weak medium and fine subangular blocky structure slightly hard, very finable slightly sticky and slightly prastic, common medium roots and many fine and very fine roots, few fine tubular pores, few thin clay films on peds. 30 percent pebbles, 15 percent cobbles, and 5 percent stones, neutral, clear smooth boundary.
- B211—7 to 11 inches, brown (10YR 5/3) very cobbly sandy day loam, dark brown (10YR 4/3) moist moderate coarse and medium subangular blocky structure; hard firm, sticky and plastic, common medium roots and many fine and very fine roots, common fine and very fine tubular pores, 30 percent pebbles, 15 percent cobbles, and 5 percent stones, common thin day films on peds and lining pores, neutral; clear wavy boundary
- 8221—11 to 19 mohes, pale brown (10YR 6/3) very cobbly sandy clay loam, brown (10YR 4/3) morst.

moderate coarse and medium angular blocky structure, hard firm sticky and plastic, few medium and fine roots, few fine and very fine tubular pores. 35 percent pebbles, 15 percent cobbies, and 10 percent stones, common thin clay films on peds and fining pores, neutral; crear wavy boundary.

R. 19 inches, andesite

Thickness of the moilic epipedon is 7 to 20 inches Thickness of the solum and depth to bedrock are 10 to 20 inches. Reaction is slightly acid to midtly afkaline. The Bt horizon has 35 to 75 percent rock fragments.

and 27 to 35 percent clay

East Fork Series

The East Fork series consists of very deep, somewhat poorly drained moderately slowly permeable soils on I god plains, a uvial flats, and low stream terraces. These so a formed in a luvium derived from basait and esite, luff, and granitic rocks. Slopes are 0 to 2 percent.

Typical pedon of East Fork day loam, 1,700 feet east and 1 800 feet north of the southwest corner of sec. 23 T 13 N R 25 E

Ap—0 to 7 inches, grayish brown (10YR 572) clay loam, very dark grayish brown (10YR 372) moist; moderate medium and I ne subangular blocky structure, hard. I rm, sticky and plastic many fine and very fine roots many very line tubular pores, neutral; clear smooth boundary.

A11—7 to 14 inches, grayish brown (10YR 5/2) clay foam very dark gray (10YR 3/1) moist many medium distinct brown (10YR 4/3) iron mothes, moderate medium and fine subangular blocky structure, hard very firm, sticky and plastic, common medium roots and many line and very fine roots, many very fine tubular pores, heutral gradual

smooth boundary

A12—14 to 18 nches, gray (10YR 5/1) light silty clay very dark gray (10YR 3/1) moist, moderate medium and fine angular blocky structure; very hard, very 1 rm, very sticky and very plastic, common medium roots and many fine and very fine roots, many very fine tubular pores, neutral, abrupt smooth boundary

IC1ca—18 to 31 inches light brownish gray (10YR 6/2) heavy loam, dark grayish brown (10YR 4/2) most massive few medium roots and many fine and very fine roots, many very fine tubular pores, slightly effervescent; moderately alkaline; abrupt smooth

boundary

II.A1b—31 to 36 inches, gray (10YR 5/1) sitty clay, very dark gray (10YR 3/1) moist, many medium distinct yellowish brown (10YR 5/6) iron mottles; moderate medium and fine angular blocky structure; very hard, very firm, very sticky and very plastic; few medium roots and common fine and very fine roots; many very fine tubular pores, slightly effervescent, moderately alkaline, abrupt smooth boundary

IVC2—36 to 59 inches, light brownish gray (10YR 6/2) heavy loam, dark grayish brown (10YR 4/2) moist, many medium distinct light olive brown (2.5Y 5/4) iron mottles, massive slightly hard friable sticky and plastic, few fine and very fine roots, few very fine tubular pores, slightly effervescent in spots, moderately a kaline, abrupt smooth boundary

VC3—59 to 68 inches, uncoated sand, common coarse distinct yellowish brown (10YR 5/6) iron mottles, loose nonsticky and nonplastic many very tine interstitial pores moderately arkaine.

The thickness of the moric epipedon is 10 to 20 inches. The control section is stratified sand to diay that averages 25 to 35 percent day and less than 5 percent rock tragments. Reaction of the control section is neutral to moderately alkaline.

Fallon Series

The Fallon series consists of very deep, somewhat poorly drained, moderately rapidly permeable soils on low stream terraces. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Failon line sandy dam, 1 350 feet north and 2 600 feet east of the southwest corner of sec. 2 T 13 N R 25 E.

A1—0 to 1 inch. light brownish gray (10YR 6/2) fine sandy loam dark grayish brown (10YR 4/2) moist weak medium granular structure slightly hard, very frable nonsticky and nonplastic, few fine and many very fine roots, common fine and very fine tubular and interstitial pores, strongly effervescent, moderately alkaline abrupt smooth boundary

C1—1 to 10 inches, pale brown (10YR 6/3) fine sandy oam dark grayish brown (10YR 4/2) moist, massive hard, fnable, nonsticky and slightly plastic many fine and very fine roots, many very fine interstital pores and common fine tubular pores, slightly effervescent in spots, moderately arkaine;

abrupt smooth boundary

C2—10 to 19 inches, light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist, many medium distinct dark ye owish brown (10YR 3/4) iron mottles: massive hard, triable, nonsticky and slightly plastic many fine and very fine roots, many very fine interstitial pores and common fine tubular pores, neutral: abrupt wavy boundary

IIC3—19 to 25 inches, light brownish gray (10YR 6/2) sand, grayish brown (10YR 5/2) moist, common medium famt brown (10YR 5/3) iron mottles, single grain, loose, nonsticky and nonplastic; few fine and

common very fine roots, many fine and very fine interstitial pores, slightly effervescent in spots.

neutral abrupt smooth boundary

C4—25 to 32 nches, light gray (10YR 7/2) very fine sandy toam vanegated gray and grayish brown (10YR 5/1 and 5/2) moist, few fine and medium prominent dark yellowish brown (10YR 4/6) iron motties, massive hard, fnable nonsticky and nonplastic few very fine roots, many very fine interstrial pores, neutral, abrupt smooth boundary

U C5—32 to 42 nches, light gray (2.5Y 6/1) fine sand very dark gray (2.5Y 3/1) moist; massive soft very friab a nonsticky and nonprastic few very fine roots, many very fine interstitial pores, neutral abrupt.

smooth boundary

IRC6—42 to 60 inches; light gray (2.5Y 6/1) sitt loam, very dark gray (2.5Y 3/1) moist, massive hard fnable slightly sticky and slightly plastic, few very fine roots, many very fine interstitial pores, neutral

The control section is stratified and averages sandy loam or fine sendy loam that is 5 to 15 percent clay. Reaction is neutral to strongly akaiine.

Fernley Series

The Fernley series consists of very deep poorty drained very rapidly permeable soils on flood plains, low stream terraces and detaic fans. These soils formed in sandy alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedan of Ferniey barry sand, 1,000 feet south and 1,750 feet east of the northwest corner of sec. 14

T. 13 N. R 25 E

A1—0 to 8 inches light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist, single grain loose, nonslicky and nonplastic, few fine and common very fine roots, many fine and very fine interstitial porest slightly effervescent, moderately alkaline clear smooth boundary.

C1—8 to 15 nches, light brown shigray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist, single grain loose nonsticky and nonplastic, few fine and common very fine roots, many fine and very fine interstitial pores, slightly effervescent, moderately.

alkaline, gradual smooth boundary

C2—15 to 30 inches, light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist, many coarse faint brown (10YR 4/3) fron mottles, single grain, loose inonsticky and nonplastic few fine and common very fine roots; many fine and very fine pores, 5 percent pebbles, mildly alkaline gradual smooth boundary.

C3—30 to 60 inches, light brownish gray (10YR 6/2) sand dark grayish brown (10YR 4/2) moist many coarse distinct dark yellowish brown (10YR 4/4) iron

mottles; single grain; loose nonsticky and

nonplastic, few very fine roots, many fine and very fine pores, 10 percent pebbles, neutral

The control section consists of fine to coarse sand and as much as 15 percent pebbles. Reaction is neutral to moderately alkaline.

Flex Series

The flex senes consists of shallow and very shallow well drained imoderately permeable soils on mountain nodes and side slopes. These soils formed in resultain derived from highly weathered metavolcanic and andesitic rock. Slopes are 15 to 50 percent.

Typical pedon of Flex gravelly loam in an area of Fiex Duco association about 50 feet east and 2,100 feet south of the northwest corner of sec. 13, T. 10 N , P. 26 E.

A11—0 to 2 inches, grayish brown (10YR 5/2) gravely loam, dark brown (10YR 4/3) moist imoderate medium and fine subangular blocky structure, slightly hard, very triable, nonsticky and a ghtty prastic few fine and very fine roots common fine interstitial pores. 25 percent pebbies and 5 percent cobbles, neutral labrupt smooth boundary.

A12—2 to 4 inches, grayish brown (10YR 5/2) grave vicam, dark brown (10YR 4/3) moist, moderate medium platy structure slightly hard very frable slightly sticky and slightly plastic, many fine and very fine roots, common fine vesicular pores, 25 percent pebbles and 5 percent cobbles, neutral, clear

smooth boundary

B21—4 to 7 inches strong brown (7.5YR 5/6) very gravelly sandy clay loam yellowish brown (10YR 5/6) moist, weak fine subangular blocky structure hard, fnable sticky and plastic, few medium roots and many fine and very fine roots, few fine tubular pores; clay bridges between mineral grains and few thin clay films on ped faces. 35 percent pebbles and 5 percent cobbles, neutral, crear smooth boundary

83:—7 to 12 inches, reddish ye low (7 5YR 6-6) very gravelly sandy clay loam, strong brown (7 5YR 5/6, moist, massive, slightly hard, friable isticky and slightly plastic; few medium and fine roots common fine interstitial pores, day bridges between minera grains 40 percent pebbles and 5 percent cobbles, neutral gradual wavy boundary.

Cr—12 to 30 inches, highly weathered metavolcanic and furfaceous bedrock

Thickness of the solum and depth to the paralithic contact are 6 to 12 inches

The 8t horizon is very gravely sandy loam or very gravely sandy clay loam that is 18 to 27 percent clay and 35 to 50 percent rock fragments, mostly pebbies Reaction is slightly acid or neutral.

Fulstone Series

The Fu stone series consists of shalow well drained slowly permeable soils on very old alturnal fans. These so is formed in material derived from igneous and metamorphic rocks. Slopes are 2 to 30 percent.

Typical pedon of Fulstone cobbly loam 2 to 8 percent slopes, about 800 feet north of the southeast comet of sec. 33. T. 10 N. R. 24 E.

A11—0 to 2 riches, light gray (10YR 6/1) cobbly loam dark gray shibrown (10YR 4/2) moist imoderate fine granular structure, soft ivery friable, slightly sticky and sightly plastic few very fine roots few medium and many fine and very fine interstitia, and vesicular pores ineutral, abrupt smooth boundary.

A12-2 to 5 inches, grayish brown (10YR 5/2) loam dark grayish brown (10YR 4/2) moist imoderate fine granular structure slightly hard, very frable slightly sticky and slightly plastic, few line and many very line roots, many very fine interstitial and vesicular pores imoderately alkaline, abrupt wavy boundary

B2t +5 to 13 inches, brown (7.5YR 4-4) clay brown (7.5YR 4/4) moist strong medium prismatic structure, very hard, firm, very sticky and very plastic, few fine and very fine roots, common fine and very line tubular pores continuous pressure faces neutral abrupt wavy boundary.

B3t—13 to 18 inches, brown (7 SYR 4/4) clay brown (7 SYR 4/4) moist imoderate medium subangular blocky structure; hard, firm, sticky and very plastic few fine and very line roots, few fine and very fine lubular pores, common moderately thick clay films in no pores, neutral labrupt wavy boundary.

C1sicam—18 to 22 inches, light yellowish brown (10YR 6/4) indurated duripan with grayish brown (10YR 5/2) aminae, brown (10YR 4/3) moist, moderate very thick platy structure, extremely hard, extremely 1 rm, root mats on surface, strongly effervescent moderately a kaline, abrupt smooth boundary

C2sicam—22 to 30 inches, light yellowish brown (10YR 6/4) alternating weakly and strongly silical and imecemented layers, brown (10YR 4/3) moist, massive very hard, very firm, strongly effervescent, strongly alkaline; clear wavy boundary.

C3sica—30 to 48 inches, light gray (10YR 7/2) very cobbly sandy loam, brown (10YR 5/3) moist massive; slightly hard fliable, slightly stocky and slightly plastic, lew thin weakly stoca- and time-cemented horizontal layers and masses. 30 percent pebbles and 25 percent cobbles, violently effervescent, strongly alkaline.

Thickness of the solum and depth to the dunpan are 14 to 20 inches.

The Bt horizon has 45 to 60 percent clay and averages less than 5 percent rock fragments.

Fulstone Variant

The Fulstone variant consists of moderately deep well drained, slowly permeable soils on plateaus. These soils formed in residuum derived from basic igneous rock Slopes are 0 to 8 percent.

Typical pedon of Fulstone Variant extremely cobbiy foam im an area of Fulstone Variant-DevisiGlean association, 4 690 feet east-southeast of benchmark 8108 T 8 N R 26 E

- A11—0 to 1 inch. light brownish gray (10YR 5/2) extremely cobbly toam, dark brown (10YR 3/3) and dark grayish brown (10YR 4/3) moist weak medium platy structure soft, very friable slightly sticky and slightly plastic many fine and very fine roots, many fine and very fine vesicular pores. 20 percent grave and 50 percent cobbles, neutral, abrupt smooth boundary.
- A12—1 to 5 inches, grayish brown (10YR 5/2) extremely cobbly foam brown (10YR 3/3) moist moderate fine and very fine granular structure soft very friable slightly sticky and slightly plastic few medium common fine and many very line roots, common fine and many very line pores, 15 percent gravel and 50 percent cobbles, neutral clear wavy boundary.
- A8—5 to 9 inches grayish brown (10YR 5/2) cobbly cray loam, dark brown (10YR 3/3) moist, strong line subangular blocky structure hard firm sticky and prastic, few medium common fine and many very fine roots, common fine and many very line tubular pores. 15 percent gravel and 15 percent cobbles neutral abrupt wavy boundary.
- B211—9 to 11 inches, brown (10YR 5/3) cobbly day, dark brown (10YR 4/3) moist, strong line angular brocky structure, hard, firm, very sticky and vary plastic, few medium and line roots and many vary fine roots, many line and very fine tubular pores. 15 percent gravel and 15 percent cobbles, neutral, abrupt wavy boundary.
- B22t—11 to 15 inches brown (10YR 5/3) gravely clay dark brown (10YR 4/3) moist, strong medium and fine prismatic structure, very hard, very firm, very stickly and very plastic, tew medium and fine roots and common very fine roots, many fine and very fine pores, common thin, moderately (hick, and thick c ay films on ped faces, 20 percent gravel and 5 percent cobbies, neutral, clear wavy boundary.
- 623t—15 to 20 inches, yellowish brown (10YR 5/4) day, dark yellowish brown (10YR 4/4) moist, strong medium fine angular blocky structure: very hard, very firm, very sticky and very plastic few medium and fine roots and many very fine roots many fine and very fine pores, many thin moderately thick, and thick clay films on ped faces; 10 percent gravel; neutral clear wavy boundary.

B3t—20 to 25 inches, very pale brown (10YR 7/4) clay loam, ye owish brown (10YR 5/4) moist, strong medium and fine angular blocky structure hard, firm, sticky and plastic; few medium and fine roots and common very fine roots, many fine and very fine tubular pores; many thin and moderately thick clay films on ped faces and ining pores, neutral clear wavy boundary.

C1sim—25 to 32 riches, very pale brown (10YR 7/4) duripan with strongly cemented plates in a weakly cemented matrix, ye owish brown (10YR 4/4) moist massive very hard, very firm, brittle neutral abrupt.

wavy boundary

C2sicam—32 to 46 inches, strongly silical and limecemented duripan, discontinuous thin silica faminae massive strongly effervescent moderately alkaline

The molic epipedon is 7 to 10 inches thick. Thickness of the solum and depth to the duripan are 20 to 30 inches. Reaction of the solum is slightly acid or neutra. The Bt horizon averages clay loam, or grave ly clay that is 35 to 50 percent clay.

Gamgee Series

The Gamges series consists of very deep well drained, slowly permeable so is on old alluvia, fans and terraces. These soits formed in alluvium derived from voicanic rocks, Slopes are 2 to 15 percent.

Typical pedon of Gamgee gravely sand, 2 to 15 percent slopes about 7 000 feet west northwest of

benchmark 4741, T 16 N R. 27 E

A11—0 to 3 nches, light brownish gray (10YR 6/2) grave ly sand, dark gray-sh brown (10YR 4/2) moist single grain, loose, nonsticky and honplastic, common fine and very fine roots, many very fine interstitial pores, 20 percent gravel. 5 percent cobbles, and 2 percent stones, neutral abrupt smooth boundary.

A12—3 to 4 inches light gray (10YR 7/1) loam gray (10YR 5/1) moist moderate thin platy structure slightly hard, very friable, nonsticky and nonplastic common fine and many very fine roots, many fine and very fine vesicular pores, mildly alkaline; clear

smooth boundary

B21t—4 to 11 inches, dark yellowish brown (10YR 4/4) c ay dam, dark yellowish brown (10YR 4/4) moist moderate med um and fine prismatic structure parting to moderate fine subangular and angular blocky; very hard firm, very sticky and very plasticified fine and many very fine roots, few fine and many very fine tubular pores; continuous thin and moderately thick clay films on ped faces and liming pores, strongly alkaline; clear wavy boundary.

B22t—11 to 17 inches, ye lowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist, weak coarse prismatic structure parting to moderate

medium and coarse subangular blocky, very hard, firm, stocky and plastic, few fine and very fine roots, common very fine tubular pores, continuous thin and very thin clay films on ped faces and ining pores, slightly effervescent in spots, strongly alkaline; gradual wavy boundary.

B3ica—17 to 23 inches, light yellowish brown (10YR 6.4) loam, dark yellowish brown (10YR 4/4) moist, weak medium and coarse subangular blocky structure, hard friable, slightly sticky and slightly prastic, tew very tine roots, common very fine tubular pores, many very thin clay bridges, strongly effervescent in spots, strongly alkaline, gradual wavy boundary.

C1ca: 23 to 60 inches paid brown (10YR 6-3) sandy loam, dark brown (10YR 4/3) moist, massive, slightly hard very finable inonsticky and nonplastic few very fine roots, many very fine interstitial pores.

strongly ellervescent strongly alkaine

Thickness of the solum is 20 to 30 inches. The 8t horizon averages 25 to 35 percent clay bull it has 35 to 45 percent clay in some parts. Rock fragment content is less than 15 percent. The sodium absorption ratio is less than 13 in the upper part of the 8t and is 20 to 40 in the lower part. Reaction is moderately alkaline or strongly alkaline.

Glean Series

The Glean series consists of deep and very deep, well drained, moderately rapidly permeable soils on side slopes. These soils formed in collection derived from mixed rock sources. Slopes are 6 to 50 percent.

Ity loam 8 to 15 percent slopes, in an area of Glean-Devils association, 2,650 feet east by northeast of VABM 9544 T 8 N. R. 26 E.

A11—0 to 2 inches, dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist moderate medium and fine subangular blocky structure, soft, very fnable, nonsticky and hompiastic many fine and very fine roots, many fine and very fine interstital pores. 30 percent pebbies less than 5 percent cobbies and stones, and boulders 4 to 8 feet in diameter and 25 to 200 feet apart, sightly acid, abrupt smooth boundary.

A12—2 to 8 inches, brown (10YR 5/3) gravelly loam, dark brown (10YR 5/3) moist, moderate medium and fine subangular blocky structure, soft, very thable honsboky and honprastic common medium roots and many fine and very fine roots, few fine and many very fine tubular pores. 30 percent pebbies and less than 5 percent cobbles and stones, slightly acid: gradual smooth boundary

A13—8 to 14 inches, brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist, weak medium and

fine subangular blocky structure; soft, very fnable, nonsticky and nonplastic, common medium roots and many fine and very fine roots, few fine and many very fine tubular pores, 30 percent pebbles and ess than 5 percent cobbies and stones neutral gradual smooth boundary.

AC—14 to 24 inches, brown (10YR 5/3) very cobbly oam dark brown (10YR 3/3) moist; massive soft very finable, noristicky and nonplastic common medium and fine roots and many very fine roots, common fine and many very fine tubular pores, 30 percent pebbles, 20 percent cobbles, and 5 percent stones, sightly acid, gradual smooth boundary.

C1—24 to 60 inches ipaie brown (10YR 6/3) very cobby foam dark ye owish brown (10YR 3/4) moist massive; soft, very fnable nonstickly and nonplastic few medium and fine roots and many very fine roots few fine and many very fine tubular pores, 25 percent pebbles, 15 percent cobbies, and 5 percent stones slightly acid.

The mollic epipedon is 22 to 39 inches thick. Depth to bedrock is 40 to 70 inches. The control section has 8 to 18 percent clay and 35 to 50 percent rock fragments. Reaction is a ghtly acid or neutral.

Glean Variant

The Glean Variant consists of moderately deep, well drained very rapidly permeable soils on mountainsides. These soils formed in residuum and collusium derived from granitic bedrock. Slopes are 50 to 75 percent.

Typical pedon of Glean Variant gravelly loamy sand, in an area of Glean Variant-Hartig Variant-Rubble land association about 550 feet west and 1 400 feet south of the northeast corner of sec. 34, T. 8 N. R. 24 E.

- A11—0 to 4 nches, dark gray shiprown (10YR 4/2) gravely loamy sand, very dark grayish brown (10YR 3/2) moist; massive: loose nonsticky and nonplastic; many very fine roots, many very fine and fine interstitial pores. 25 percent fine pebbles neutral abrupt wavy boundary.
- A12—4 to 11 inches, brown (10YR 5/3) gravelly sand, dark brown (10YR 3/3) moist, single grain, loose nonsticky and nonpiastic, few fine and many very fine roots; many fine and very fine interstitial pores, 30 percent fine pebbles, neutral; abrupt wavy boundary
- C1--11 to 31 inches; brown (10YR 5/3) gravelly sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine roots and common fine, med um, and coarse roots, many very fine interstitial pores. 30 percent fine pebbles, neutral, abrupt wavy boundary.
- Cr—31 to 36 inches soft granite; some roots in fractures

The mollic epipedon is 10 to 16 inches thick. Depth to a paralithic contact is 20 to 40 inches, and depth to unweathered bedrock is 40 to 80 inches. The particle size control section is gravelly sand or gravelly learny sand.

Haar Series

The Haar senes consists of very shallow, well drained moderately permeable solls on the sides of dissected Tertiary taxebeds. These soils formed in residuum derived from soft sedimentary bodrock. Slopes are 15 to 50 percent.

Typical pedon of Haar gravely loam, 30 to 50 percent slopes in an area of Raveneti Haar Rock outcrop association, 450 feet east of the southwest corner of sec. 1 T.7 N. R. 27 E.

- A1—0 to 2 inches light brown shigray (10YR 6/2) grave ly loam, brown (10YR 4/3) moist liveak medium and fine granular structure, soft, very friable, nonsticky and nonplastic, few very fine roots: many very fine interstitial pores. 30 percent pebbies, mildly a kaline, abrupt smooth boundary.
- C1--2 to 6 inches, light gray (10YR 7/2) silt loam brown (10YR 5/3) moist; massive slightly hard very triable, nonsticky and nonplastic few coarse roots common medium and fine roots, and many very fine roots, many fine and very tine interstitial pores, 80 percent graves sized fragments of soft sitistione moderately a kaline, clear wavy boundary.
- C2r—6 nches, tractured stratified sandstone mudstone, and sutstone, root mats in fractures

Depth to the paralithic contact is 4 to 10 inches. The profile is 50 to 90 percent soft rock fragments, most of which stake in water. Clay content is 10 to 18 percent. Reaction is neutral to moderately alkaline.

Hartig Series

The Hartig series consists of deep and very deep well drained moderately permeable soils on mountainsides. These soils formed in colluvium and residuum derived from andeste and rhybite. Siopes are 30 to 50 percent.

Typical peden of Hartig very gravelly sandy loam in an area of Glean-Ticino-Hartig association in 1.150 feet west and 2.300 feet north of the southeast corner of sec. 26 Titing River 22 E

At1 -0 to 4 inches, grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure, soft, very fnable, nonsticky and nonplastic, few medium and coarse roots and many fine and very fine roots, many very fine interstitial pores; 45 percent pebbles 5 percent cobbles, and 1 percent stones, neutral, clear smooth boundary.

A12—4 to 14 inches; brown (10YR 5/3) very gravely sandy loam, dark brown (10YR 3/3) moist; moderate medium granu ar structure, soft, very fnable nonsticky and nonpiastic, few medium roots and many tine and very fine roots, many very fine interstitial pores, 40 percent peobles and 10 percent cobbles; neutral icides among the sand 10 percent cobbles; neutral icides among the sand 10 percent cobbles.

B2—14 to 24 inches, pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist, weak medium and fine subangular blocky structure: soft, very friable, nonsticky and nonplastic, few medium and coarse roots, common fine roots, and many very fine roots, many fine interstitial pores and few fine tubular pores, 45 percent pebbles and 10 percent cobbles, neutral, gradual wavy boundary.

C1—24 to 32 inches, very pare brown (10YR 7/3) very gravelly sandy parm brown (10YR 5/3) moist massive; soft, very friable indistickly and nonplastic, few medium roots, common fine roots, and many very fine roots, many very fine interstital pores and few fine tubular pores, 45 percent pebbies, 10 percent cobbles, and 2 percent stones, neutral gradual wavy boundary.

C2—32 to 60 inches light gray (10YR 7/2) very gravelly sandy loam grayish brown (10YR 5/2) moist massive soft, very friable, nonsticky and nonplastic few medium roots common line roots, and many very fine roots, many very line interstitial pores, 45 percent pebbles, 10 percent cobbles, and 2 percent stones, neutral

The mollic apipedon is 7 to 20 inches thick. Depth to bedrock a 40 to 70 inches. The control section averages very gravely oam or very gravely sandy loam that is 8 to 18 percent clay and 35 to 60 percent rock fragments, mostly pebbles. Reaction is slightly acid or neutral.

Hartig Variant

The Hartig Variant consists of shallow, well drained, moderately rapidly permeable soils on mountainsides. These soils formed in residuum derived from grantic bedrock. Slopes are 30 to 50 percent.

Typical pedon of Hartig Variant extremely gravelly coarse sand in an area of Gleen Variant-Hartig Variant-Rubble and association, 400 feet east and 1,400 feet south of the northwest corner of sec. 22, T. 6 N. R. 24 E.

A11—0 to 2 inches, dark grayish brown (10YR 4/2) extremely gravelly coarse sand, black (10YR 2/1) moist, single grain, loose, nonsticky and nonplastic common fine and very fine roots, many fine and very fine interstitial pores, 50 percent peobles, 20 percent cobbles, and 5 percent stones, neutral abrupt smooth boundary.

A12—2 to 9 riches: dark grayish brown (10YR 4/2) very gravelry sandy loarn, very dark brown (10YR 2/2)

moist; weak medium granular structure soft, very finable, nonsticky and nonplastic, many coarse, medium, fine, and very fine roots: many very fine interstital pores, 40 percent pebbles, 10 percent cobbles, and 5 percent stones, neutral, clear wavy boundary.

A13—9 to 16 inches, dark grayish brown (10YR 4/2 extremely gravelly sandy loam, very dark brown (10YR 2/2) moist, massive, soft, very friable nonstickly and nonplastic, common coarse and medium roots and many fine and very fine roots, many very fine interstitial pores, 50 percent pebbles, 15 percent cobbles, and 5 percent stones, neutral abrupt wavy boundary.

R. 16 inches, fractured granite roots extend into fractures.

The mollic epipedon is 9 to 16 inches thick. Depth to bedrock is 10 to 20 inches. The profile has 50 to 80 percent rock fragments, mainly pebb es. Reaction is slightly acid or neutral. A C horizon is present in some pedons.

Hawsley Series

The Hawsiey series consists of very deep isomewhat excessively drained very rapidly permeable so a on alluvial fans and terraces. These soils formed in alluvial and water-reworked eclian deposits derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of Hawsley sand, 2 to 8 percent slopes 1 800 feet north and 1,600 feet east of projected corner of sec. 17 T. 16 N. R. 27 E.

A1—0 to 2 inches, light brownish gray (10YR 6/2) sand dark grayish brown (10YR 4/2) moist, single grain toose, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, neutral, abrupt smooth boundary.

C1—2 to 8 inches, light brownish gray (10YR 8-2) sand, dark grayish brown (10YR 4/2) moist, massive soft very fliable nonsticky and nonplastic common fine and many very fine roots, many very fine interstitial pores, neutral clear smooth boundary.

C2—8 to 24 inches, pale brown (10YR 6/3, sand, brown (10YR 4/3) moist; massive; soft, very fnable, nonsticky and nonplastic, few medium, fine, and very fine roots, many very fine interstitial pores, mildly alkaline, gradual wavy boundary.

C3ca—24 to 38 inches: light brownish gray (10YR 6/2) sand, brown (10YR 4/3) moist; massive: soft very finable, nonsticky and nonplastic; few very fine roots many very fine interstitial pores, strongly effervescent, strongly a kaline, gradual wavy boundary.

C5ca—38 to 60 inches, light brownish gray (10YR 672) sand, dark grayish brown (10YR 472) moist

massive soft, very fnable, nonsticky and nonplastic, few very line roots, many very fine interstitial pores, slightly effervescent, strongly alkaline.

The control section is strata of fine sand, sand, and coarse sand. Reaction is midry arkaline to strongly alkaline.

Haybourne Series

The Haybourne senes consists of very deep, well drained, moderately rapidly permeable soils on the lower end of a luviatilians. These so is formed in mixed alluvium derived mainly from granitic rocks. Stopes are 0 to 2 percent.

Typical pedan of Haybourne loam, about 200 feet south and 2 300 feet east of the northwest corner of sec. 10, T. 11 N. R. 23 F.

- A11—0 to 5 inches, brown (10YR 5/3) loam dark gray shibrown (10YR 4/2) moist massive sughtly hard, friable, nonsticky and nonplastic, common medium roots and many fine and very fine roots, common very fine Lubular pores, heutral, clear smooth boundary.
- A12—5 to 11 inches brown (10YR 5/3) leam, dark grayish brown (10YR 4/2) moist, weak medium and fine subangular blocky structure, slightly hard friable, slightly sticky and slightly plastic, common medium roots, few fine roots, and many very fine roots, common very fine interstitial and tubular pores and few coarse vesicular pores, neutral clear smooth boundary.
- B2—11 to 20 inches yellowish brown (10YR 5/4) heavy sandy loam, dark brown (10YR 3/3) moist, weak medium and fine subangular blocky structure sightly hard, very friable slightly sticky and nonplastic, few medium and fine roots and common very fine roots, few fine tubular pores, few thin and very thin clay bridges, neutral, clear wavy boundary
- B3—20 to 32 inches, yellowish brown (10YR 5/4) sandy loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure, hard, finable nonsticky and nonplastic few very fine roots; few fine and very fine interstitial pores, few very thin clay bridges, neutral; gradual wavy boundary.
- C1—32 to 58 inches, yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist massive hard, friable, nonsticky and nonplastic, few very fine roots, few fine and many very fine interstitial pores, neutral, clear wavy boundary
- C2—58 to 60 inches: yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 4/4) moist, massive, soft, friable, nonsticky and nonplastic, few fine and many very fine interstitial pores, neutral

The control section averages 8 to 18 percent clay and contains less than 15 percent rock fragments. Reaction is neutral to moderately alkaline.

Hocar Series

The Hocar senes consists of shalow well drained moderately permeable soils on low mountains. These soils formed in residuum and colluvium derived from metasedimentary rocks. Slopes are 15 to 30 percent.

Typical pedon of Hocar gravelly loam, in an area of Hocar Rock outcrop complex 15 to 30 percent slopes, eroded, about 300 feet east and 1 822 feet south of the northwest corner of sec. 25, T. 16 N. R. 20 E.

Ot-1 inch to 0 juniper and pine litter

- A1—0 to 9 inches, brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist, weak medium subangular blocky structure, soft, very friable, slightly sticky and slightly plastic, many fine and very line roots, many very fine interstitial pores, 25 percent pebblics strongly efforvescent, moderately alkaline, clear smooth boundary.
- C1—9 to 15 inches, yellowish brown (10YR 5/4, very gravely loam, dark yellowish brown (10YR 3/4) moist, massive soft, very friable, slightly sticky and slightly plastic common coarse and medium roots and many line and very fine roots, many very fine interstitial pores, 35 percent pebbles, coallings of time on underside of pebbles, strongly effervescent moderately alkaline, clear smooth boundary.
- C2—15 to 19 nches pale brown (10YR 6/3) extremely gravelly foam, brown (10YR 4/3) moist massive, soft, slightly sticky and slightly prestic many coarse medium, fine, and very fine roots, many very fine interstitial pores 60 percent time-coated pabbies strongly effervescent, moderately alkaline; clear irregular boundary.
- Cr—19 inches fractured, soft metasedimentary bedrock coatings of lime in fractures

Depth to the parasitisc contact is 7 to 20 inches. The control section has 10 to 18 percent clay and 40 to 85 percent rock fragments.

Holbrook Series

The Holbrook senes consists of very deep, well drained, moderately rapidly permeable soils on recent a uvial fails. These soils formed in mixed a uvium Slopes are 2 to 15 percent.

Typical pedon of Holbrook very stony sandy loam, 4 to 15 percent slopes, about 1,350 feet south and 1 000 feet east of the northwest corner of sec. 4, T. 11 N , R. 23 E.

A1 ~0 to 10 inches, grayish brown (10YR 5/2) very storry sandy loars, very dark grayish brown (10YR 3/2) moist, weak medium and fine subangular

blocky structure; soft, very fnable, nonsticky and nonplastic, few very fine and fine interstital pores. 20 percent peobles, 5 percent cobbies, and 10 percent stones, neutral: clear wayy boundary

C1-10 to 15 inches, light brownish gray (10YR 6/2). very gravelly sandy loam, dark grayish brown (10YR 4/2) moist, massive soft, very fnable nonslicky and nonplastic few coarse, medium, and fine roots and common very fine roots, few line and very fine tubular pores and many very fine interstitial pores, 30 percent peobles and 10 percent cobbles, neutral gradual wavy boundary.

C2-15 to 31 inches light brownish gray (10YR 6/2). very gravelly sandy toam, very dark grayish brown. (10YR 3/2) moist massive, sughtly hard very Iriable honsticky and honplastic few medium and The roots and common very fine roots, few line and very fine tubular pores and many very fine interstital pores 30 percent pebbles and 10 percent cobbles. neutral gradua wavy boundary

C3-31 to 43 nches, light brownish gray (2.5Y 6/2) very gravelly sandy loam, dark grayish brown (2.5Y 4/2). moist massive, sightly hard, very fnable nonsticky and nonplastic few line and common very fine roots, many fine and very fine interstital pores, 40 percent pebbles and 10 percent cobbles, neutral,

gradual wavy boundary

43 to 60 inches; light brown shigray (2.5Y 672) very gravelly loam, dark grayish brown (2.5Y 4/2). moist, massive slightly hard, very friable nonsticky and nonplastic, few fine and very fine roots, many fine and very line interstital pores, 40 percent. peobles and 15 percent cobbles, moderately alkaline; strongly effervescent

The mollic epipedon is 10 to 20 inches thick. The control section is stratified but averages 5 to 10 percent clay and 35 to 50 percent rock fragments. Reaction is slightly acid to moderately alkaline

Holbrook Variant

The Holbrook Variant consists of moderately deep. well drained, moderately rapidly permeable soils on low hills and mountains. These so is formed in residuum derived from andesite and basalt. Slopes are 30 to 75 percent

Typica, pedon of Holbrook Vanant very stony fine sandy loam, in an area of Holbrook Variant-Rock outcrop. complex 30 to 75 percent slopes 200 feet south and 1,800 feet east of the northwest corner of sec. 5, T. 15 N R 21 F

A11—0 to 3 inches, ight brownish gray (10YR 6/2) very stony line sandy (oam, very dark gray/sh brown) (10YR 3/2) moist; moderate medium and fine. granu ar structure, soft, very Inabie, nonsticky and nonprastic, few fine and many very fine roots, many

fine and very fine interstitial pores; 10 percent pebbies, 20 percent cobbles, and 20 percent stones. neutral: clear smooth boundary

- A12: 3 to 9 inches, pare brown (10YR 6/3) very cobbly. fine sandy loam, dark brown (10YR 3/3) moist. weak medium and fine granular structure; slightly hard, very friable nonsticky and nonplastic common fine and many very fine roots, many very fine interstitial pores and few fine lubular pores 10 percent pebbles, 30 percent cobbles, and 2 percent stones, neutral clear smooth boundary
- 92-9 to 20 inches, light yellowish brown (10YR 6/4). very cobbly sandy loam, dark ye owish brown (10YR) 4/4) moist, moderate medium and fine subangular. blocky structure, slightly hard, very fnable, nonsticky, and nonplastic, few medium roots and common line. and very fine roots, few fine and many very fine lubular pores, 15 percent pebb es, 30 porcent. cobbles, and 4 percent stones, neutral: clear wavy boundary.
- C1-20 to 35 inches, paie brown (10YR 6/3) very gravelly fine sandy loam, dark brown (10YR 4/3). moist, massive, hard very friable, slightly sticky and nonplastic few medium and fine roots and common very fine roots, few fine and very fine tubular pores. 35 percent peobles, 15 percent cobbles, and 4 percent stones, neutral; abrupt wavy boundary
- R 35 inches hard andes te

Depth to unweathered bedrock is 20 to 40 inches. The particle size control section is very gravelly fine sandy cam very cobbly sandy loam or extremely cobbly sandy loam that is 5 to 10 percent clay

Hotsprings Series

The Hotsprings series consists of very deep, we i drained rapidly permeable soils on a uvial fans. These soils formed in alluvium derived from granitic rocks. Slopes are 0 to 8 percent.

Typical pedon of Hotsprings grave ly loamy coarse. sand. 0 to 2 percent slopes, about 500 feet north and 1 000 feet east of the southwest comer of sec. 3, T. 11 N , FI 23 E

- A11—0 to 1 inch, paie brown (10YR 6/3) very gravelly. coarse sand, brown (10YR 5/3) moist; single grain, loose, nonsticky and nonplastic, many fine and very fine interstibal pores: 60 percent fine pebbles. neutral abrupt smooth boundary
- A12 -1 to 4 inches, brown (10YR 5/3) gravelly loamy. coarse sand, dark brown (10YR 3/3) moist, massive, soft, very frable, nonsticky and nonplastic, few fine roots, lew fine and many very fine tubular pores. 25 percent fine pebbles, neutral, abrupt smooth boundary

A13—4 to 9 inches, brown (10YR 5/3) gravelly fearly sand, dark brown (10YR 3/3) moist, massive sightly hard. Inable, nonsticky and nonplastic, common fine and very fine roots, few fine and common very fine tubular pores, 25 percent fine pebbles, neutral, clear smooth boundary.

C1—9 to 15 inches, ye rowish brown (10YR 5/4) gravely oamy sand, dark yellowish brown (10YR 4/4) moist, massive hard, very friable nonsticky and nonplastic common fine roots, few fine and many very fine interstitial and tubular pores, 20 percent fine pebbles, lew patchy day films, neutral, clear smooth.

boundary

C2—15 to 29 inches, ye owish brown (10YR 574) gravely loamy sand, dark yellowish brown (10YR 474) moist, massive thatd, fnable, nonstickly and nonplastic few very fine roots few fine and many very fine tubular and interstitial pores, 30 percent line pebbies, patchy clay bridges, neutral clear smooth boundary.

C3—29 to 35 inches, ye lowish brown (10YR 5/4) grave ly loamy sand, dark yellowish brown (10YR 4/4) moist, massive hard, friable, nonsticky and nonplastic law very fine roots few very fine tubular pores and many very fine interstitial pores. 20 percent fine pebbles, neutral, clear smooth

boundary

C4—35 to 60 inches yellowish brown (10YR 5/4) gravely loamy sand, dark yellowish brown (10YR 4/4) moist massive, sightly hard, fnable nonsticky and nonplastic few very fine roots: common very fine interstitial pores, 25 percent fine peobles neutral.

The control section is grave ly loamy coarse sand or gravelry loamy sand that is 20 to 35 percent rock fragments, mostly fine pebbles.

Hough Series

The Hough series consists of very deep, well drained, moderately permeable soils on take plains, terraces, and a uvia, fans. These soils formed in equan-modified a luvial and facustring sed ment derived from intrusive and extrusive igneous rocks. Slopes are 0 to 2 percent

Typical pedon of Hough sand, 0 to 2 percent slopes, about 1,700 feet east and 300 feet south of the northwest corner of sec. 16. T. 17. N. R. 25 E.

A11—0 to 3 inches, light gray (10YR 7/2) sand, dark grayish brown (10YR 4/2) moist, single grain: loose nonsticky and nonplastic, many very fine roots many very fine and fine interstitial pores; neutral abrupt smooth boundary.

A12—3 to 6 inches, light brownish gray (10YR 6/2) sand, grayish brown (10YR 5/2) moist; weak thick p aty structure; slightly hard, very friable, nonsticky and nonplastic many very fine and fine roots, many

very fine interstitial pores and few medium tubular pores, neutral, abrupt smooth boundary

A13—6 to 10 inches, pale brown (10YR 5/3) loamy sand brown (10YR 5/3) moist, weak coarse subangular blocky structure. Slightly hard, very finable, nonsticky and nonplastic, common very line and fine roots, many very fine and fine interstitia pores and few medium tubular pores, slightly acid clear wavy boundary.

i-81—10 to 14 inches, light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist, weak medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine and fine roots and few medium roots, many very fine and fine vesicular pores, neutral; clear irregular boundary

bB2t—14 to 21 inches, brown (10YR 5/3) sandy clay barn, dark brown (10YR 4/3) moist, moderate medium and coarse subangular blocky structure hard finable sticky and plastic few medium roots and common very fine and tine roots common very fine and fine tubular pores and common fine interstitial pores, common moderately thick clay films on peds and many thin and moderately thick clay films lining pores and bridging mineral grains, neutral, clear wavy boundary.

183—21 to 26 inches, brown (10YR 5/3) fine sand with strata of coarse sand about 1 centimeter thick dark brown (10YR 4/3) moist, weak moderate subangular blocky structure; hard very friable, nonsticky and nonplastic, common very fine and fine roots, many very fine and fine interstital pores, few thin clay films bridging mineral grains, neutral; clear wavy.

boundary

PIC1—26 to 60 inches, uncoated, stratified yellowish brown (10YR 5/4) fine sand to coarse sand dark yellowish brown (10YR 4/4) moist, many relict ron oxide mottles, single grain, loose nonsticky and nonplastic, common very fine and fine roots, many very fine and fine interstitial pores, neutral

The Bt horizon is sandy loam or sandy clay loam that is 18 to 25 percent clay. Reaction of the sandy substratum is neutral to moderately a kaline.

Hunewill Series

The Hunewill series consists of very deep, well drained, moderately slowly permeable soils on alluvial tans and stream terraces. These soils formed in a luvium derived from mixed rock sources. Slopes are 2 to 30 percent.

Typical pedon of Hunewill very grave ty sandy loam, 2 to 8 percent slopes, about 750 feet south and 2 700 feet east of the northwest corner of sec. 29, T. 10 N., R. 24 F.

A11—0 to 1 nch: grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist massive; soft, very friable nonsticky and nonplastic; many very fine interstital pores. 45 percent pebbles. 10 percent cobbles, and 1 percent stones, neutral; abrupt wavy boundary.

A12—1 to 3 inches, light brownish gray (10YR 6/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist, weak medium platy structure, slightly hard very friable, nonsticky and nonplastic common very fine roots, many fine and very fine vesicular pores, 35 percent pebbles, 5 percent cobbles, and 1 percent stones, neutral, clear wavy boundary.

B2t—3 to 13 inches, brown (10YR 5/3) very gravelty day oam, dark brown (10YR 3/3) most imoderate medium and fine subangular blocky structure hard, friable, sticky and plastic; common medium and fine roots and many very fine roots, common fine and many very fine lubular pores. 25 percent pebbies and 10 percent cobbies continuous thin clay hims on pad faces and lining pores, neutral, clear wavy boundary.

iB3t—13 to 18 inches, brown (10YR 5/3) very gravely sandy loam, dark brown (10YR 3/3) moist; weak modium subangular blocky structure, slightly hard, very friable inonsticky and horiplastic, tew medium and fine roots and common very fine roots, few fine and many very fine interstitial pores, 40 percent pebbles and 15 percent cobbles, common thin clay bridges, neutral, clear wavy boundary.

(C1—18 to 60 inches, grayish brown (10YR 5/2) extremely gravely sand, very dark grayish brown (10YR 3/2) moist, single grain, loose indistickly and nonplastic; few fine and very fine roots, many line and very fine interstitial pores, 45 percent pebbies, and 20 percent cobbies, neutral.

Thickness of the solum is 10 to 20 inches. The Bi horizon averages 18 to 27 percent diay and 35 to 50 percent rock fragments.

The C horizon is extremely gravely or extremely cobbly sand or loamy sand

Hyloc Series

The Hyloc series consists of shallow, well drained slowly permeable soils on mountainsides. These soils formed in residuum derived mainly from andesite and basalt. Slopes are 15 to 50 percent.

Typical pedon of Hyloc very cobbly sandy loam, 15 to 30 percent slopes, in an area of Hyloc lister association, about 800 feet west and 1 600 feet south of the northeast corner of sec. 10, T 15 N. R 22 E

- 01—1 rich to 0: duff of pine needles around and under trees
- A1—0 to 3 inches: grayish brown (10YR 5/2) very cobbly sandy loam, very dark grayish brown (10YR

3/2) moist, moderate thick platy structure; slightly hard, very finable, nonsticky and nonplastic, many fine vesicular pores and many very fine interstitia pores, many very fine roots, 20 percent cobbles. 20 percent pebbles, and 5 percent stones, slightly acid; abrupt smooth boundary.

Bit—3 to 5 inches, brown (7 5YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist, strong fine granular structure, hard very fnable, slightly sticky and plastic, many very fine interstit at pores many line roots. 20 percent pebbles, 20 percent cobbles, and 15 percent stones, many thin clay I ms on peds, neutral, abrupt smooth boundary.

92t—5 to 14 inches brown (7.5YR 5-2) day, dark brown (10YR 3/3) moist imoderate medium angular blocky structure, very hard, very firm, sticky and plastic, common very fine tubular and interstitual pores common line and coarse roots and many medium roots, 10 percent pebbles, continuous moderately thick clay films on peds and ining pores ineutral clear smooth boundary.

B3t—14 to 18 inches, brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist, partially weathered minerals of varying colors, massive hard, very friable, slightly sticky and slightly plastic; many very fine interstitial pores, few fine and coarse roots many thin clay films lining pores, neutral; abrupt smooth boundary.

Cr—18 to 24 inches, gray (N 6/0) soft weathered basalt crear smooth boundary

R-24 inches basalt

The molic epipedon is 7 to 14 inches thick. Thickness of the solum and depth to the paralithic contact are 14 to 20 inches. Depth to hard bedrock is 20 to 35 inches. The 82t horizon averages 40 to 55 percent clay and has as much as 20 percent rock fragments.

Isolde Series

The Isolde senes consists of very deep, excessively drained, very rapidly permeable soils on semi-stabilized dunes on terraces. These soils formed in edian sand derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of isolde fine sand, 0 to 15 percent slopes, about 1,350 feet north and 1,800 feet west of the southeast corner of sec. 17, T. 17 N., R. 25 E.

- A11—0 to 2 inches paie brown (10YR 6/3) fine sand brown (10YR 4/3) moist, single grain; loose nonsticky and nonplastic, many very fine interstitial pores, neutral; clear smooth boundary
- A12—2 to 7 inches, pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; massive; soft, very fnable, nonsticky and nonplastic, few fine and many very

fine roots, many very fine interstitia, pores, mildly a kaline; abrupt smooth boundary

- C1 7 to 21 inches, pale brown (10YR 6/3) sand brown (10YR 4/3) moist; massive, soft, very fnable, nonsticky and nonplastic many medium roots, few fine roots, and common very fine roots, many very fine interstitial pores, moderately alkaline clear wavy boundary.
- C2 21 to 45 inches, pale brown (10YR 6/3) sand. brown (10YR 4/3) molst, massive, soft, very fnable noneticky and nonplastic few medium and fine roots and many very fine roots, many very fine interstitial pores, moderately alkaline, abrupt wavy boundary.
- C3—45 to 60 inches, pale brown (10YR 6/3) sand, brown (10YR 4/3) moist massive soft, very friable nonsticky and nonplastic, few line and very fine roots, many very fine interstit all pores, moderately alkaling.

The control section is tine sand or sand. Reaction is neutral to moderately atkaline. In some pedons the tower part of the C horizon is strongly effervescent and strongly a kaline.

Ister Series

The ister series consists of moderately deep were drained, moderately slowly permeable soils on north- and east-facing mountainsides. These soils formed in residuum derived mainly from andesite. Slopes are 30 to 75 percent.

Typical pedon of Ister extremely stony sandy loam, 30 to 50 percent slopes, in an area of Hyloc-Ister association, about 1,700 feet east and 2,600 feet north of the southwest corner of sec. 9, T. 15 N. R. 22 E.

- O1—1/2 nch to 0, duff of pine needles with 65 percent rock fragments mainly stones.
- A1—0 to 11 inches; dark grayish brown (10YR 4/2) extremely stony sandy loam, very dark grayish brown (10YR 3/2) moist, moderate fine granular structure; soft very friable nonsticky and nonplastic many very fine interstitial pores many fine and very fine roots, 55 percent rock fragments, mostly stones, mildly alkaline; clear smooth boundary
- B1t—11 to 17 inches: ight yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist, weak medium subangular blocky structure, slightly hard very friable, slightly sticky and sightly plastic; many fine and very fine interstitial pores common fine and medium roots and few coarse roots, 15 percent pebbles and 10 percent cobbles, few thin day films and stains on pebbles; neutral, clear smooth boundary.
- B21t—17 to 24 inches, 1ght yellowish brown (10YR 6/4) very stony sandy clay loam, dark yellowish brown (10YR 4/4) moist, moderate medium angular blocky structure; hard, fnable, sticky and plastic, common

- fine and very fine tubular and interstitial pores common medium and coarse roots, 15 percent pebbies, 10 percent cobbies, and 20 percent stones, common thin clay films on peds and lining pores and colloidal stains on rock fragments. Mildly afkaline, gradual irregular boundary.
- B22t—24 to 38 inches, pale brown (10YR 6/3) very story clay loam, brown (10YR 5/3) mo still massive, very hard, firm, sticky and plastic, few medium and fine roots, common fine and very fine tubular and interstitial pores, colloidal stains on rock fragments mildly alkaline labrupt irregular boundary with soil tongues in fractured bedrock, clear irregular boundary.
- R 38 inches fractured andesite

The molic epipedon is 10 to 18 inches thick and in some pedons it includes the upper part of the Bt horizon. Thickness of the solum and depth to bedrock are 25 to 40 inches. Reaction is neutral or mildry alkaline.

The 8t horizon averages 25 to 35 percent clay and 35 to 50 percent rock fragments, mostly stones

Juva Series

The Juva series consists of very deep we drained moderately rapidly permeable soils on broad alluvial lans. These soils formed in stratified at Juvium derived from mixed rock sources. Slopes are 0 to 4 percent.

Typical pedon of Juva gravelly fine sandy loam, 2 to 4 percent slopes, about 2 640 feet south and 420 feet west of the northeast corner of sec. 32, T. 19 N. R. 25

- Ap-0 to 2 inches, light brownish gray (10YR 6/2) gravelly loamy sand, dark grayish brown (10YR 4/2) moist, moderate thin platy structure, soft, very triable nonsticky and nonplastic many fine and very fine pores. 20 percent fine pebbies strongly alkaline abrupt smooth boundary.
- A1—2 to 4 inches light gray (10YR 7/2) loam, brown (10YR 5/3) moist, massive, soft, friable slightly sticky and slightly plastic, few very fine roots, many fine and very fine pores, 10 percent peobles strongly alkaline, abrupt smooth boundary
- C1—4 to 27 inches, finely stratified gray and light brownish gray (10YR 7/2 and 6/2) sandy loam and very gravely sand grayish brown and dark grayish brown (10YR 5/2 and 4/2) moist, massive loose, very frable, nonsticky and nonplastic; few medium and fine roots and many very fine roots, few medium and many fine and very fine interstitial pores: 25 percent fine pebbles, slightly effervescent, strongly alkaline, abrupt smooth boundary
- IC2—27 to 35 inches, light gray (10YR 7/2) cobbly loam, brown (10YR 5/3) moist, massive, slightly hard, fnable, slightly sticky and slightly plastic,

common line and very fine roots, few fine and many very fine tubu at pores, 15 percent pebbles and 15 percent cobbles, slightly affervescent, moderately a kaline, gradual wavy boundary

IC3—35 to 60 inches, light brownish gray (10YR 6/2) grave ly sandy loam, dark grayish brown (10YR 4/2) moist, massive, soft, very fnable inonsticky and nonplastic, few very fine roots, many fine and very fine interstitia pores, 30 percent pebbles, slightly effervescent, moderately alkaline.

Reaction is moderately alkaline or strongly alkaline. The control section is stratified gravely sand to loam that averages 5 to 15 percent day and as much as 30 percent rock fragments. The content of exchangeable sodium is 15 to 30 percent in some parts of the profile.

Koontz Series

The Koontz series consists of shallow well drained moderately slowly permeable soils on low mountains and hill sides. These soils formed in residuum and collusium derived from Tertiary sediment. Slopes are 8 to 15 percent.

Typical pedon of Koontz very gravelly sandy loam, 8 to 15 percent slopes, in an area of Koontz-Ravenell-Haar association, about 1 600 feet west and 1 600 feet south of the northeast corner of sec. 6, 7, 8 N, R, 25 E.

A11—0 to 1 inch, grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist, weak fine granular structure, soft, very friable, nonsticky and nonplastic many fine and very fine interstitial pores. 25 percent gravel and 15 percent cobbles, neutral: abrupt smooth boundary

A12—1 to 2 inches grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist imoderate medium platy structure, slightly hard very friable is lightly sticky and slightly plastic common very line roots, common line vesicular pores, 25 percent grave, and 15 percent cobbies neut all abrupt smooth boundary.

B1t—2 to 7 inches, grayish brown (10YR 5/2) very gravelly diay loam, dark brown (10YR 3/3) moist, moderate medium and fine angular blocky structure slightly hard very fnable, sticky and plastic, common medium roots and many fine and very fine roots, many fine tubular pores, 45 percent gravel and 5 percent cobbles, mildly alkaline, clear smooth boundary.

B2t—7 to 11 inches, yellowish brown (10YR 5/4) very gravely clay loam, dark yellowish brown (10YR 4/4) moist, massive, hard, friable, sticky and plastic many medium and fine roots: many fine interstitial pores, common thin clay bridges between mineral grains, 45 percent gravel and 10 percent cobbles, mildly alkaline; clear smooth boundary.

B3—11 to 17 inches, yellowish brown (10YA 5/4) extremely gravelly loam, dark yellowish brown (10YA 4/4) moist, massive; slightly hard very friable slightly sticky and nonplastic, common medium and fine roots, common fine interstital pores, 45 percent gravel and 20 percent cobbles, mildly a kaline; abrupt smooth boundary

Cr-17 inches, soft weathered sedimentary rock

The monic epipedon is 7 to 20 inches thick. Depth to the paralithic contact is 8 to 20 inches.

The Bt horizon is very gravelly loam or very gravelly clay loam that is 20 to 35 percent diay and 35 to 60 percent rock fragments. Reaction is slightly acid to midly area ne

Lahontan Series

The Lahontan series consists of very deep, somewhat poorly drained, very slowly permeable so is on old take plains. These so is formed in fine textured acustrine material. Slopes are 0 to 2 percent.

Typical pedon of Lahontan sitty clay loam strongly saline-alkali about 1,200 feet north and 2,400 feet west of the southeast corner of sec. 6, T. 12,N. R. 24 E.

A1—0 to 1 inch, light gray (10YR 7/2) silty dray foam brown (10YR 5/3) moist, massive, slightly hard, friable very sticky and plastic; many fine and very fine vesicular pores, slightly effervescent, very strongly askaline, abrupt smooth boundary

C1—1 to 5 inches light brownish gray (10YR 6/2) sifty clay loam, brown (10YR 4/3) moist; moderate very fine granular structure hard, friable very slicky and very plastic, many very line interstitial pores, strongly effervescent, very strongly alkaline, clear smooth boundary

C2—5 to 12 inches, pale brown (10YR 6-3) sifty dray loam, brown (10YR 4/3) moist; moderate fine and very fine granular structure; hard, friable ivery sticky and very plastic, many very fine interstitial pores strongly effervescent; very strongly a kaline, clear smooth boundary.

C3—12 to 18 inches, pare brown (10YR 6/3) sitly clay dark brown (10YR 3/3) moist, very pale brown (10YR 7/3) salt flaments, moderate fine granular structure; hard, fnable, very sticky and very plastic, many very fine interstitial pores, slightly effervescent, very strongly alkarne, gradual smooth boundary.

C4—18 to 26 inches, pare brown (10YR 6/3) si ty clay dark brown (10YR 3/3) moist, many med unit faint very dark grayish brown (2.5Y 4/2) iron-manganese mottles and very pale brown (10YR 7/4) salt filaments; moderate fine granular structure; hard, finable, very sticky and very plastic; many very fine

interstitial pores slightly effervescent, very strongly

a kaine, gradual smooth boundary

C5 - 26 to 38 inches, light gray (2 5Y 7/2) clay dark grayish brown (2 5Y 4/2) moist, many medium faint dark gray (N 4/0) iron-manganese mottles, strong fine angular blocky structure; very hard, firm, very sticky and very plastic, strongly effervescent, very strongly aika, ne. gradual smooth boundary

C6. 38 to 52 inches, ight gray (2 5Y 7/2) silty clay dark grayish brown (2 5Y 4/2) moist, many medium distinct brown (10YR 4/3) ron molties, massive very hard, firm, very sticky and very ptastic, strongly effervescent very strongly alkaline, gradual smooth

boundary

C7~52 to 60 inches light gray (2.5Y 7/2) sitty diay loam dark grayish brown (2.5Y 4/2) moist, many medium distinct brown (10YR 4/3) iron mott as massive, very hard, firm, very sticky and plastic, strongly attervascent, very strongly attached.

The control section averages 35 to 60 percent day Faint or distinct mottles are at a depth of more than 15 inches

Lapon Series

The Lapon series consists of very shallow well drained, slowly permeable soils on hills and mountains. These soils formed in residuum and colluvium derived from extrusive igneous rocks. Slopes are 4 to 50 percent.

Typical pedon of Lapon extremely stony loam, 15 to 30 percent slopes, about 2,000 feet north and 600 feet east of the southwest corner of sec. 20 T. 12 N. R. 25

F

A1—0 to 2 nches, light brownish gray (10YR 6,2) extremely stony loam, dark grayish brown (10YR 4/2) moist liveak medium and thin platy structure, sightly hard, very fnable, nonsticky and nonplastic many fine and very fine vasicular pores: 40 percent pebbles, 20 percent cobbies, and 10 percent stones neutral labrupt smooth boundary.

B11—2 to 3 nches, grayish brown (10YR 5/2) very gravelly diay loam, dark grayish brown (10YR 4/2) moist, moderate fine granular structure, slightly hard firm, sticky and plastic, few fine and many very fine roots, many very fine interstital pores: 40 percent pebbies and 5 percent cobbies meutral abrupt.

smooth boundary

B2f—3 to 7 inches, brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium and fine granular structure and moderate medium and fine blocky structure; very hard, firm, very sticky and very plastic, few medium roots and common fine and very fine roots, few fine and many very fine tubular pores, 40 percent pebbles and 5 percent cobbres, neutral; clear smooth boundary.

- B3tcasi—7 to 10 inches, brown (10YR 5/3) extremely gravelly day loam, dark brown (10YR 4/3) moist weak fine and medium subangular blocky structure, hard, firm slicky and plastic few medium and fine roots and common very fine roots, few fine and many very fine interstital pores, 70 percent slical and lime-coated pebb es and grave-sized extremely hard silical and lime pain fragments: strongly effervescent, moderately alkaline; abrupt wavy boundary
- C1sicar—10 to 20 inches, white, indurated, silica- and ime-cemented hardpan: massive violently effervescent abrupt wavy boundary
- R—20 inches hard andes to silica and lime in fractures in upper part.

Thickness of the solum and depth to the duripan are θ to 14 inches. Depth to bedrock is 15 to 40 inches.

The 8t horizon averages 30 to 35 percent clay and has 35 to 60 percent rock fragments, mostly peobles. Reaction is neutral to strongly a kaline.

Loomer Series

The Loomer series consists of shallow, well drained slowly permeable sors on the sides of low hills. These sors formed in residuum derived from rhyolite. Slopes are 15 to 50 percent.

Typical pedon of Loomer extremely cobbly loam, 15 to 30 percent slopes, in an area of Loomer-Zephan-Olac association, about 1 700 feet north and 1 000 feet east of the southwest corner of sec. 12 T. 14 N., R. 24 E.

- A1--0 to 4 inches, brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist imoderate medium and line granular structure; soft, friable, slightly sticky and slightly plastic, common fine and many very line roots, many fine and very line tubular and vesicular pores. 35 percent pebbles, 25 percent cobbles, and 5 percent stones, neutral, clear wavy boundary.
- B11—4 to 7 inches brown (7 5YR 4/4) extremely cobbiy clay foam brown (7 5YR 4/4) moist, weak medium subangular blocky structure; hard, firm sticky and plastic, common medium and fine roots and many very fine roots, few fine and many very fine tubular pores. 35 percent pebbles, 25 percent cobbles, and 5 percent stones; continuous thin and moderately thick clay films on ped faces and in pores; neutra clear wavy boundary.
- 82t—7 to 15 inches, dark yellowish brown (10YR 4/4) extremely cobbly clay, dark yellowish brown (10YR 4/4) moist, strong medium and fine subangular blocky structure; very hard firm very sticky and very plastic, common medium, fine and very fine roots few fine and many very fine tubular pores, 35 percent pebbles, 25 percent cobbles, and 5 percent

stones, few thick clay films and common thin and moderately thick clay films on peds, neutral, abrupt wavy boundary

P. 15 nohes, fractured rhyonte diay coatings and roots along fractures in the upper few inches.

The motic epipedon is 7 to 9 inches thick, and it includes the upper part of the 8t horizon. Thickness of the solum and depth to bedrock are 14 to 20 inches. The profile is neutral or mildly alkaline.

The 8t horizon is extremely cobbly clay extremely gravelly clay, or extremely cobbly clay loam that is 35 to 50 percent clay and 60 to 80 percent rock fragments

Lox Series

The Lox series consists of very deep, well drained, slowly permeable soils on oid alluvia. Ians. These soils formed in alluvium derived from andesitic and granitic rocks. Slopes are 2 to 4 percent.

Typical pedan of Lox grave by fine sandy loam, 2 to 4 percent stopes, in an area of Delp-Lox association, about 1 700 feet south and 2 100 feet west of the northeast corner of sec. 28, T. 13 N. R. 24 E.

- A11—0 to 1 inch, light brownish gray (10YR 6/2) gravelly fine sand grayish brown (10YR 6/2) moist single grain loose, nonsticky and nonplastic, many very fine interstitial pores, 15 percent peobles, strongly alkaline, abrupt wavy boundary.
- A12—1 to 3 nches, light gray (10YA 7/2) gravely loam, grayish brown (10YA 5/2) moist massive hard friable sticky and slightly plastic; few fine and very fine roots many fine and very fine vesicular pores 15 percent pebbles, strongly effervescent in spots very strongly alkaline labrupt wavy boundary.
- B2t—3 to 8 inches, pale brown (10YA 6/3) clay foam, brown (10YA 5/3) moist, weak fine prismatic structure parting to moderate fine subangular blocky slightly hard, friable, very sticky and plastic, many line and very fine roots, many very fine tubular pores strongly effervescent in spots; very strongly alkaline, clear wavy boundary.
- IC1—8 to 12 inches, very paie brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist massive: slightly hard, very fnable, honsticky and nonplastic, few fine and very fine roots, many very fina interstitia, pores, 35 percent pebbles, strongly effervescent, strongly alkaline, clear wavy boundary
- 1 C2—12 to 25 nches, light brownsh gray (10YR 6/2) very gravelly sandy loam, brown (10YR 5/3) moist: massive; soft, very thable, nonsticky and nonplastic few fine and very fine roots, many very fine interstitial pores, 40 percent pebbies: strongly effervescent; very strongly alkaline; clear wavy boundary.
- IC3—25 to 60 inches light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2)

moist; massive, slightly hard, very friable nonsticky and nonplastic, many very fine interstit all pores, 45 percent pebbles, strongly effervescent, very strongly alkaline.

Thickness of the solum and depth to the unconformable IC material are 6 to 10 inches. A desert pavement is common in most areas.

The A1 horizon values in thickness because of the amount of wind erosion and the amount of eo an fine sand particles deposited on the surface.

The B2t horizon is loam, sandy clay loam or clay toam and averages 25 to 35 percent clay and less than 15 percent lock fragments. Content of exchangeable sodium is 15 to 35 percent. Reaction is strongly alkaline or very strongly alkaline.

The C honzon is very gravelly loam or very gravelly sandy loam that is 35 to 60 percent pebbles. Reaction is strongly alkaline or very strongly alkaline. The horizon is slightly effervescent to strongly effervescent.

Lunder Series

The Lunder series consists of shallow, were drained, slowly permeable so is on old a fuvia, fans. These so is formed in alluvium derived from andesite and basalt. Siopes are 2 to 15 percent.

Typical pedon of Lunder very cobbly loam 2 to 15 percent slopes, about 2,000 feet south and 1,500 feet east of the northwest corner of sec 30 T 15 N , R 22

- A1—0 to 2 inches grayish brown (10YR 5/2) extremely cobbly loam, very dark grayish brown (10YR 3/2) moist, massive, slightly hard friable, slightly slicky and slightly plastic, common fine and very fine roots, many very fine and fine interstitial pores, 20 percent pebbles, 50 percent cobbles, and 5 percent stones, neutral, abrupt smooth boundary.
- B1—2 to 7 inches, brown (7 5YR 4/2) coobly clay loam, dark brown (7 5YR 3/2) moist, moderate medium prismatic structure; hard, firm, sticky and plastic many fine and very fine tubular and interstitial pores, common thin diay films on rock fragments 15 percent pebbles and 10 percent cobbles, neutral, abrupt smooth boundary.
- B211—7 to 12 inches, brown (7 5YR 574) cobbly clay brown (7 5YR 474) moist, strong medium prismatic structure; very hard, very firm, very sticky and very plastic, few medium, fine, and very fine roots, few fine and very fine tubular pores, many pressure faces, 10 percent pebbles and 15 percent cobbles, neutral, clear wavy boundary.
- B22t—12 to 16 inches, brown (7 5YR 5/4) cobbly day brown (7 5YR 4/4) moist, strong medium prismatic structure; very hard, very firm, very sticky and very plastic, few fine and very fine roots; few fine and

very fine tubular pores, many pressure faces. 10 percent peobles and 10 percent cobbies, neutral: abrupt smooth boundary.

C1sicam—16 to 25 inches, very pale brown (10YR 7/3) indurated, silica- and time-cemented hardpan, brown (7.5YR 4/4) moist massive, sightly effervescent in spots strongly alkaline clear smooth boundary.

C2s.cam—25 to 31 inches, very pale brown (10YR 7/3) strongly silical and ime-cemented duripan, brown (7.5YR 4/4) moist, massive, strongly effervescent, very strongly alkaline; clear smooth boundary.

C3sica—31 to 60 inches pale brown (10YR 6/3)
extremely cobbly sandy loam, brown (10YR 4/3)
moist massive; hard and very hard weakly and
strongly silica- and I me-cemented layers. 30 percent
pebbles, 40 percent cobbles, and 10 percent stones
is ghtly effervescent in spots, moderately alkaline

The mollic epipedon is 7 to 10 inches thick. Thickness of the solum and depth to the indurated dubpan are 14 to 20 inches. Reaction is neutral throughout the solum and is moderately alkaline to very strongly alkaline below.

The Bt horizon has 50 to 60 percent clay and 20 to 35 percent rock fragments

Luppino Series

The Lupping series consists of shallow well drained, moderately slowly permeable soils on low hills. These soils formed in residuum derived from granitic bedrock Signes are 8 to 15 percent.

Typical podon of Juppino gravelly sandy loam, 8 to 15 percent slopes, about 1 850 feet north and 1 250 feet east of the southwest comer of sec 35 T 9 N. R 25 E

A11—0 to 2 inches, brown (10YR 5/3) gravelly sandy loam dark brown (10YR 3/3) morst, weak medium and fine granular structure soft, very fnable nonsticky and horp asticlifies yeary fine roots, many very fine interstitial pores, 30 percent fine pebbles, neutral; abrupt smooth boundary.

A12—2 to 7 inches, brown (10YR 4/3) loam, dark brown (10YR 3/3) moist, moderate medium granular structure, soft, very fnable, nonstickly and nonplastic common fine and many very fine roots, many very fine interstitial pores, 10 percent fine peobles neutral, abrupt smooth boundary.

B2t—7 to 12 inches; ye owish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist: moderate medium subangular blocky structure, hard friable, slightly sticky and slightly plastic; few medium roots and many fine and very fine roots, lew fine and many very fine tubular pores. 10 percent fine pebbies, many thin clay bridges and common thin clay films on peds and liming pores, neutral: clear smooth boundary.

Cr—12 to 21 inches soft granitic bedrock, clay coatings and roots in fractures, gradual wavy boundary Ri—21 inches: granitic bedrock

Thickness of the solum and depth to the paralithic contact are 12 to 20 inches. Depth to hard bedrock is 20 to 30 inches. Reaction is neutral to medium acid.

The B2t horizon is sandy day foam or grave ly sandy clay loam that is 20 to 30 percent day.

Malpais Series

The Malpais series consists of very deep, well drained, moderately rapidly permeable so sign alluvial fans and nila uvial drainageways. These soils formed in alluvium derived from mixed rock sources. Slopes are 2 to 15 percent.

Typical pedon of Malpais gravelly loamy sand, 2 to 8 percent slopes, about 2,650 feel south of the northwest corner of sec. 16, 7, 12 N. Pl. 25 E.

- At 1—0 to 3 inches, light brownish gray (10YR 5/2) gravelly loamly sand very dark grayish brown (10YR 3/2) moist, weak thin platy structure soft very trable nonsticky and nonplastic few very line roots, few line and many very line interstital pores 15 percent peobles and 10 percent cobbles, neutral abrupt smooth boundary.
- A12—3 to 10 inches, brown (10YR 5/3) very cobbly sandy foam dark brown (10YR 3/3) moist, massive, slightly hard, very fnable incenticky and nonplastic common very fine roots, few fine and many very fine interstitial poresides percent pebbles and 15 percent cobbles, neutral clear wavy boundary.
- B21—10 to 17 inches brown (10YR 5,3) very gravely sandy loam, dark brown (10YR 3/3) moist, massive slightly hard, very finable, nonsticky and nonplastic few medium and fine roots and common very line roots, few fine and many very fine interstitial and tubular pores, few very thin clay bridges. 30 percent pebbles and 15 percent cobbles, neutral; clear wavy boundary.
- 822—17 to 25 inches, brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 3/3) moist, massive slightly hard, very fnable, nonsticky and nonp asticities medium and fine roots and common very fine roots, few fine and many very fine interstital and tubular pores. 25 percent pebbles and 30 percent cobbles, neutral: clear wavy boundary
- Ctca—25 to 44 inches, pale brown (10YR 6/3) extremely cobbly sandy loam, dark brown (10YR 3/3) moist; massive, slightly hard very friable, nonstickly and nonplastic. Iew very fine roots, many very fine interstitial pores; 40 percent pebbles and 30 percent cobbles, moderately a kaline, strongly effervescent clear wavy boundary.

C2ca 44 to 60 inches grayish brown (10YR 5/2) very cobbiy sandy loam, dark brown (10YR 3/3) meist massive soft, very finable, nonsticky and nonplastic few very fine roots; many very fine interstitial pores slightly effervescent 15 percent cobbles and 20 percent pebbles moderately alkaline.

Thickness of the solum is 15 to 35 inches. The control section averages 10 to 18 percent clay and 50 to 70 percent rock fragments. Reaction is neutral to strongly alkaline.

Minneha Series

The Minneha series consists of shallow isomewhat excessively drained, moderately rapidly permeable soils on mountainsides. These soils formed in residuum derived from granitic bedrock. Slopes are 30 to 75 percent.

Typical pedan of Minnohal extremely stony sandy oam 50 to 75 percent slopes in an area of Minnehal Drit Rock outcrop association about 700 feet north and 1 650 feet east of the southwest corner of sec. 9 T. 11 N. R. 23 E.

- A11—0 to 5 inches dark grayish brown (10YR 4/2) extremely story sandy dam very dark brown (10YR 2/2) moist week medium and fine granular structure, soft, very fnable, nonstickly and nonplastic few fine and many very fine roots, many very fine interstrial pores, 30 percent pebbles, 20 percent cobbies, and 25 percent stones, neutral, clear smooth boundary.
- A12—5 to 12 inches, grayish brown (10YR 5/2) very gravely loam, very dark grayish brown (10YR 3/2) moist, weak fine subangular blocky structure soft, very frable nonsticky and nonplastic common coarse medium, and fine roots and many very fine roots, many very fine interstitial pores. 35 percent pebbles and 10 percent cobbles neutral clear smooth boundary.
- C1—12 to 18 inches, pale brown (10YR 6/3) very grave ly sandy loam, brown (10YR 4/3) moist massive sightly hard, very fnable, nonsticky and nonplastic; few medium and coarse roots and common fine and very fine roots; many very fine interstitial pores. 40 percent pebbles and 15 percent cobbles, neutral; abrupt wavy boundary.

C2r-18 nohes, weathered granitic bedrock

The molic epipedon is 11 to 18 inches thick. Depth to the paralithic contact is 13 to 20 inches. Reaction is slightly acid to mid y alkaline. The control section has 6 to 15 percent clay and 35 to 50 percent rock fragments mainly peobles.

Mirkwood Series

The Mirkwood series consists of very shallow well drained, moderately slowly permeable soils on mountainsides. These soils formed in residuum derived from basic igneous rock. Slopes are 15 to 75 percent.

Typical pedan of Mirkwood very cobbly fine sandy oam in an area of Mirkwood Nemico association, 1,550 leef south and 2,400 feet west of the projected northeast corner of sec. 3, T. 16 N. R. 27 F.

- A1—0 to 4 inches, light brownish gray (10YR 8/2) very cobbly fine sandy loam, dark grayish brown (10YR 4/2) moist, weak medium and thick platy structure soft very fnable, nonsticky and nonplastic, few fine and many very fine roots many very fine interstitial pores. 40 percent pebbles, 15 percent cobbles, and 5 percent stones mildly alkaline clear smooth boundary.
- B11—4 to 7 inches, light brownish gray (10YR 6/2) very gravelly tine sandy loam, brown (10YR 4/3) moist moderate medium and fine subangular blocky structure, soft ivery triable, slightly sticky and slightly plastic few fine and common very fine roots common fine and many very fine lubular pores few very thin clay bridges, 35 percent pebbles, 10 percent cobbies, and 5 percent slones imoderately alkaline clear smooth boundary.
- B2t---7 to 11 inches, yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist, moderate line subangular blocky structure hard firm, sticky and plastic few line and common very fine roots, few fine and common very fine tubular pores, common thin clay films on peds and lining pores, 25 percent peobles, 10 percent cobbies, and 5 percent stones, moderately alkaline clear wavy boundary.
- 83tca—11 to 14 inches, light yellowish brown (10YR 6/4) very gravelly day loam, ye owish brown (10YR 5/4) moist; weak fine subangular blocky structure, hard, firm, sticky and plastic; common fine and very fine roots common very fine pores; common thin day films on peds and lining pores; 30 percent pebbles, 10 percent coobles, and 5 percent stones, strongly effervescent; moderately alkaline; abrupt wavy boundary.
- R-14 inches, fractured, lime-coated andeste

Thickness of the solum and depth to bedrock are 7 to 14 inches. The control section averages 18 to 27 percent day and 35 to 50 percent rock fragments. Reaction is neutral to strongly alkaline commonly increasing in alkalinity with depth.

The Bt horizon averages very gravelly loam or very gravelly clay loam that is 25 to 35 percent clay. Some pedons have lime-coated pebbles and a sightly

effervescent to strongly effervescent matrix in the lower part

Nall Series

The Nati series consists of shallow well drained, moderately rapidly permeable soils on rolling uplands. These soils formed in residuum derived from granitic bedrock. Slopes are 8 to 15 percent.

Typical pedon of Na gravelly sandy loam, in an area of Na -, upping Hotsprings association, about 2,900 feet north and 1,500 feet east of the southwest corner of sec. 27, T. 9 N., Fl. 25 E.

A11—0 to 2 inches, grayish brown (10YR 5/2) gravelly loamy sand, very dark brown (10YR 2/2) moist, weak medium and tine subangular blocky structure soft very frable, nonsticky and nonplastic common very fine roots, many very fine interstitia, pores, 20 percent fine pebbles, neutral; abrupt smooth boundary.

A12—2 to 5 inches, brown (18YR 5/3) gravetly sandy learn dark brown (18YR 3/3) moist, weak medium and fine subangular blocky structure, soft, very friable nonsticky and nonplastic few fine and many very line roots, many very fine interstital pores, 15 percent pebbles, neutral abrupt smooth boundary

A13—5 to 8 inches brown (10YR 473) gravely coarse sandy pam, very dark brown (10YR 272) moist. Weak medium and fine subangular blocky structure soft, very fnable, nonsticky and nonplastic, few medium roots, common fine roots, and many very fine roots, many very fine interstital pores, 30 percent fine pebbles ineutral, abrupt wavy boundary

Cr—8 to 20 nches, decomposed granutic bedrock some roots in fractures, gradual wavy boundary

A-20 inches hard granitic bedrock

The motic epipedon is 7 to 12 inches thick. Depth to the para thic contact is 7 to 20 inches. The profile is 4 to 10 percent clay and 15 to 35 percent rock fragments mainly fine pebbles. Reaction is slightly acid or neutral

The C horizon, where present, is gravelly sandy loam or gravelly toamy coarse sand that is 15 to 35 percent fine pebbies

Nemico Series

The Nemico series consists of shallow, well drained very slowly permeable soils on plateaus. These soils formed in residuum derived from basic igneous rocks. Slopes are 0 to 30 percent.

Typical pedon of Nemico very story sandy loam, in an area of Mirkwood-Nemico association, about 2,500 feet east-northeast of benchmark 5810; 1,450 feet east and 1,050 feet south of projected northwest corner of sec. 4, T 15 N R. 27 É

A11 0 to 1 inch. Ight brownsh gray (10YR 6/2) Vervices tony loamy tine sand, brown (10YR 4/3) moist, single grain; loose, nonsticky and nonplastic, many very fine interstitial pores, 35 percent pebbies, 25 percent cobbies, and 5 percent stones, neutral abrupt smooth boundary.

A12—1 to 6 inches, light gray (10YR 7/1) grave ly sandy loam, dark grayish brown (10YR 4/2) moist, weak medium platy structure; soft, very friable, nonstickly and nonplastic, lew fine and many very fine roots, many medium and fine vesicular pores, 30 percent pebbles, moderately alkaline, abrupt wavy boundary.

821—6 to 13 inches, yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist moderate tine prismatic structure parting to strong line subangular blocky hard, firm sticky and very prastic common fine and many very fine roots few line and many very fine tubular pores; many thin and moderately thick diay films on pods and fining pores. 20 percent pebbles, strongly a kaline, clear wavy boundary.

B3ica—13 to 18 inches, brown (10YR 5/3) graverly clay dark brown (10YR 4/3) moist, moderate medium and fine subangular blocky structure; very hard, firm, sticky and very prastic, few tine and common very fine roots, few fine and many very line lubular pores, common thin clay films on peds and lining pores, 20 percent pebbles, strongly effervescent, strongly alkaine, abrupt smooth boundary.

C1sicam—18 to 21 inches, very pale brown (10YR 7/3) indurated dumpan, brown (10YR 5/3) moist, massive extremely hard, extremely firm; violently effervescent, abrupt wavy boundary

R-21 inches, hard andesite

Thickness of the solum is 10 to 18 inches. The depth to the indurated dunpan is 10 to 20 inches, and the depth to bedrock is 11 to 25 inches.

The 8t honzon is gravely clay loam or gravely clay that is 35 to 45 percent clay. Reaction is moderately a kaline or strongly alkaline.

Nosrac Series

The Nosrac series consists of very deep, well drained, moderately slowly permeable soils on mountainsides. These soils formed in residuum and colluvium derived from andesite and basalt. Slopes are 30 to 50 percent.

Typical pedan of Nosrac stony loam, in an area of Cagle-Nosrac association, about 9 miles south and 3 miles east of Dayton. 400 feet east and 550 feet north of the southwest corner of sec. 5, T. 14 N., R. 22 E.

A11—0 to 4 inches, grayish brown (10YR 5/2) story foam, very dark grayish brown (10YR 3/2) moist, moderate medium and coarse granular structure; soft, very friable, nonsticky and nonplastic, many

fine and very fine roots many fine and very fine interstitial pores, 15 percent pebbles and 2 percent stones slightly acid, clear wayy boundary.

A12—4 to 12 inches dark grayish brown (10YR 4-2) cobbiy loam, very dark grayish brown (10YR 3-2) molst, weak medium subangular blocky structure soft, very friable, sticky and slightly plastic, many medium roots and common fine and very fine roots many fine and very fine tubular and interstital pores and law medium and coarse tubular pores, 20 percent pebbles and 15 percent cobbies, slightly acid clear wavy boundary.

B21:—12 to 17 inches, brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist, strong medium and fine subanquiar blocky structure, slightly hard friable, sticky and plastic common coarse, medium line, and very fine roots, common medium and fine pores, and many very fine pores, many thin clay bridges and many thin clay films lining pores, 20 percent pebbles and 10 percent cobbles, neutral clear wayy bouridary.

B22t—17 to 30 nches, brown (10YR 5/3) very cobbly clay dam dark brown (10YR 4/3) moist strong medium and fine subangular blocky structure hard I m allow and plastic few medium, fine and very I he roots, common fine and very I he tubular pores many thin clay bridges and many thin clay films on peds and lining pores. 25 percent pebbles and 15 percent cobbles ineutral clear wavy boundary.

B23f--30 to 45 inches pale brown (10YR 6/3) very gravely clay loam, dark yellowish brown (10YR 4/4) moist imported medium subengular blocky structure hard, firm sticky and plastic few medium fine, and very line roots, common fine and very fine tubular pores, common thin clay films on peds and ning pores, 40 percent pebbles and 15 percent cobbles, neutral abrupt wavy boundary.

B3t—45 to 60 inches, pale brown (10YR 6/3) very gravelly pam brown (10YR 4/3) moist weak med um and coarse subangular blocky structure sightly hard, finable, slightly sticky and slightly plastic few medium, line and very fine roots, common fine and very fine tubular pores, common thin 6 by films on peds and lining pores 35 percent pebbles and 15 percent cobbles; neutral

The moric epipedon is 14 to 20 inches thick. The thickness of the solum is more than 50 inches. Depth to bedrock is more than 60 inches. Reaction is slightly acid or neutral.

The B2t horizon averages very gravely loam or very grave ty clay loam that is 25 to 35 percent clay and 35 to 60 percent rock fragments.

The B3I horizon is very gravelly fine sandy loam to very gravelly clay loam and averages 18 to 30 percent clay

A C honzon is in some pedons

Obanion Series

The Obanion series consists of very deep very poorly drained, moderately slowly permeable so is in small depressional areas and seep areas of alluvial fans and alluvial flats. These soils formed in a luvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Obanion loamy coarse sand, about 500 feet south and 500 feet west of the northeast corner of sec. 15. T. 11. N. R. 23. E.

- A11 -0 to 7 inches, grayish brown (10YR 5/2) damy coarse sand grayish brown (10YR 5/2) dry is nglograin, loose, nonstickly and nonprastic many very fine roots, 1/2-inch root mation surface, common very fine tubular pores and many very fine interstitial pores, mildly a kaline, abrupt wavy boundary.
- A12—7 to 11 inches, very dark gray shibrown (10YR 372) coarse sandy loam, gray (5Y 671) dry many medium and coarse distinct dark reudish brown (10YR 374) iron mottles massive hard friable nonsticky and nonplastic many very fine roots in pockets, common very tine interstitial pores, strong via kaline clear smooth boundary.
- C1—11 to 15 inches brown (10YR 4/3) sandy clay loam, dark gray and light gray (5Y 4/1 and 7/1) dry few medium and coarse distinct dark fedoish brown 5YR 3/4) rob mottles and few very coarse prominent dark greenish gray (5G 4/1) gleyed spots massive very hard, firm, sticky and plastic common very tine roots, common very fine interstitlar pores, very strongly alkaline, clear smooth boundary.
- C2g—15 to 22 inches dark greenish gray (5G 4/1) and ight yellowish brown (2.5Y 6/4) sandy dray loam light greenish gray (5G 7/1) dry massive: very hard, firm, sticky and plastic few very fine roots 15 percent 1/2-inch firm durinodes strongly effervescent, very strongly alkaline abrupt wavy boundary.
- C3—22 to 34 inches, light olive brown (2.5Y 5/4) sandy loam, light gray (5Y 7/1) dry' massive; slightly hard fnable slightly sticky and slightly plastic; few very fine roots strongly effervescent, strongly alkaline abrupt wavy boundary
- C4ca—34 to 60 inches, dark olive gray (5Y 3/2) sandy loam, gray (5Y 5/1) dry, many medium and coarse distinct olive (5Y 5/4) from mottles and many medium and coarse prominent pink (5YR 7/3) soft time masses; massive, slightly hard, finable, slightly sticky and slightly plastic, 15 percent 1/2-inch dunnodes, strongly effervescent; very strongly alkaline.

The control section is stratified, but it averages loam or sandy day loam that is 18 to 35 percent day and less than 5 percent rock tragments. Content of exchangeable sodium is 15 to 35 percent in more than half of the

upper 20 inches, and it decreases with depth. The profile is nonce careous to strongly effervescent throughout, but it is nonceleareous in some part between depths of 10 and 20 inches in all pedons. Reaction is strongly alkaline to very strongly alkaline.

Olac Series

The O ac series consists of very shallow well drained moderately permeable so s on his and mountains. These so is formed in residuum derived from rhyolite conglomerate, and basalt. Slopes are 8 to 75 percent.

Typica pedon of Ofac extremely story loam, 15 to 50 percent slopes in an area of Loomer Zephan-Ofac association, 250 feet north and 50 feet west of the southeast corner of sec. 11, T. 14 N. R. 23 E.

A1—0 to 4 inches gray shibrown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist moderate medium and coarse granular structure siightly hard, friable slightly sticky and nonplastic, few fine and many very fine roots, many fine and very fine tubular pores, 30 percent peobles 15 percent cobbies and 15 percent stones, neutral clear wavy boundary.

B21t—4 to 8 inches, dark ye owish brown (10YR 4 4) extremely gravely clay loam, dark yellowish brown (10YR 4/4) moist, strong medium and fine subangular blocky structure, hard, firm, sticky and plastic, few medium roots and common fine and many very fine roots, few fine and common very fine tubular pores, few thin clay films on peds and lifting pores, 40 percent pebbles, 20 percent cobbies, and 5 percent stones, neutral, clear wavy boundary

B221—8 to 14 inches, ye lowish brown (10YR 5/4) extremely gravelly diay dam dark yellowish brown (10YR 4/4) moist, moderate medium subangular blocky structure, hard finable, sticky and plastic, few medium roots common fine roots and many very fine roots common very fine tubular pores, common thin diay films on peds and whing pores, 40 percent pebbles, 20 percent cobbies, and 5 percent stones mildly arkaline; abrupt wavy boundary

R—14 inches, hard, fractured rhyolite, roots and clay films in tractures

Thickness of the solum and depth to bedrock are 8 to 14 inches. The control section averages 18 to 27 percent day and 35 to 60 percent rock fragments. Reaction is slightly acid to middly alkaline.

The Bt horizon is extremely gravelly loam or extremely gravelly clay loam that is 23 to 30 percent clay and 60 to 75 percent rock fragments, mainly pebbles

Old Camp Series

The Old Camp senes consists of shallow, well drained, moderately slowly permeable soils on uplands. These

soils formed in residuum derived from basic gneous rock. Slopes are 8 to 75 percent.

Typical pedon of Old Camp extremely stony loam, 30 to 50 percent slopes, in an area of Old Camp Mirkwood-Nemicol association, about 750 feet north and 2,000 feet east of the southwest corner of sec. 1, T. 7 N. R. 26 E.

- A11—0 to 2 inches, grayish brown (10YR 5/2) extremely stony sandy loam, very dark grayish brown (10YR 3/2) moist, weak fine granular structure, soft, very triable, nonsticky and nonplastic, many very fine interstital pores, 25 percent pebbles, 20 percent cobbles, and 40 percent stones, neutral abrupt wavy boundary.
- A12—2 to 4 inches, light gray (10YR 7/2) very stony sittleam gray-sh brown (10YR 4/2) morst, weak medium platy structure, soft, very finable inonsticky and nonplastic, tew very fine roots, few medium and many fine and very fine vesicular pores, 5 percent pebbles 10 percent cobbies and 30 percent stones neutral abrupt wavy boundary.
- Bit-4 to 8 inches light gray (10YR 7/2) very cobbly toam, brown (10YR 4/3) moist, weak medium and fine subangular blocky structure; slightly hard, very triable slightly sticky and slightly plastic tew line and common very line roots, common fine and very line tubular pores, few thin clay films on peds. 20 percent pebbles. 20 percent cobbles, and 10 percent stones, neutral clear wavy boundary.
- 82t—8 to 14 inches, pale brown (10YR 6/3) extremely cobbly clay loam, brown (10YR 4/3) moist, moderate medium and line subangular blocky structure hard, fnable sticky and plastic, few medium common fine and many very fine tubular pores, continuous thin clay bridges and few thin and moderately thick clay films on ped faces and lining pores, 40 percent pebbles, 20 percent cobbles, and 10 percent stones, thin coatings of lime on underside of rock fragments, mody a kaline labrupt wavy boundary.

R-14 inches, hard, lime-coated andesite

Thickness of the solum and depth to bedrock are 10 to 20 inches. Reaction of the profile is neutral to strongly alkaline, commonly increasing in alkalinity with depth

The 8t horizon is loam, sandy clay loam, or clay loam that is 25 to 35 percent day and 50 to 75 percent rock fragments.

Oppio Series

The Oppio series consists of moderately deep, well drained, slowly permeable so s on low hills and mountains. These soils formed in residuum derived from basic igneous rock. Slopes are 30 to 50 percent.

Typical pedon of Oppio very stony fine sandy loam, in an area of Oppio Nosrac association, about 260 feet

north and 780 feet east of the southwest corner of sec 34, T 16 N R 21 E

A1—0 to 2 inches, light brownish gray (10YR 6/2) very story fine sandy loam idark grayish brown (10YR 4/2) moist, moderate fine and very fine granular structure, siightly hard ivery friable, nonsticky and nonplastic, common fine and very fine roots, few fine and many very fine interstital pores, 20 percent pebbles its percent cobbies, and 20 percent stones neutral abrupt wavy boundary.

B11—2 to 6 inches grayish brown (10YR 5/2) cobbly clay loam, dark grayish brown (10YR 4/2) moist moderate medium subangular blocky structure, hard fnable, sticky and plastic common fine and very line roots, common very fine interstitlal pores, 15 percent cobbles and 20 percent grayet neutral, clear wayy.

boundary

B21t—8 to 15 inches pale brown (10YR 6-3) clay brown (10YR 5/3) moist, strong medium and coarse subangular blocky structure, very hard firm, very sticky and very plastic, few medium roots and common fine and very fine roots many fine and very fine pores continuous thin and moderately thick clay tims on peds and lining pores, neutral, clear wavy

boundary

B22t—15 to 31 inches pale brown (10YR 6 3) day brown (10YR 5/3) moist, strong medium and coarse subangular blocky structure very hard very firm very sticky and very plastic, common medium and fine roots and many very fine roots many fine and very fine pores continuous thin and moderately thick clay films on pads and fining pores, sightly effervescent in spots near the bedrock mildly alkaline abrupt wavy boundary.

R-31 inches, hard andesite, clay coatings and roots in

tractures

Thickness of the solum and depth to bedrock are 20 to 40 nones. Reaction is neutral or midfy alkaline. The B2t horizon averages 40 to 50 percent clay and 5 to 15 percent rock fragments.

Orizaba Series

The Orizaba series consists of very deep, somewhat poorly drained, moderately slowly permeable soils on alluvial flats and old take plains. These soils formed in a uvium and lacustrine material derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Orizaba silty diay loam, about 1 300 feet south and 1,600 feet west of the northeast comer of

sec 36, T 12 N R, 25 E

A1: 0 to 3 inches, light brownish gray (10YR 6/2) sity clay dam dark grayish brown (10YR 4/2) moist moderate medium and thin platy structure slightly hard, friable, sticky and plastic; few very fine roots. few fine and many very fine tubular pores, strongly effervescent; very strongly a kaline labrupt smooth boundary.

C1—3 to 12 inches, pale brown (10YR 6/3) sity clay loam, brown (10YR 4/3) moist, massive, sightly hard, frable sticky and plastic few medium, fine and very fine roots, few fine and many very fine tubular poresistrongly effervescent; very strongly a kaline, gradual smooth boundary.

C2—12 to 21 inches, light brownish gray (10YR 6/2) skly clay loam brown (10YR 4/3) moist massive, hard fnable sticky and plastic few medium, line, and very fine roots few fine and very fine tubular pores, strongly effervescent, very strongly alkaline, clear

smooth boundary

C3 – 21 to 34 inches light brownish gray (10YR 8/2) clay loam, brown (10YR 4/3) moist, very dark brown and dark yellowish brown manganese stains massive very hard finable sticky and plastic, few medium fine and very tine roots few fine and many very line tubular pores, strongly effervescent, very strongly alkaline clear smooth boundary.

C4—34 to 60 inches, light brownish gray (10YR 672) clay loam, brown (10YR 473) moist many large faint dark grayish brown and dark ye owish brown iron mottles, massive very hard triable very slicky and very plastic, few fine and very fine roots, few fine and many very fine lubular pores, strongly effervescent, strongly aikaline.

The profile is slightly effervescent to violently effervescent and is strongly sainle- and a kali affected in places a sail crust or salt efforescence is on the surface. Content of exchangeable sodium is 15 to 40 percent in the upper 20 inches decreasing with depth. The control section averages 25 to 35 percent clay and less than 5 percent rock fragments. Reaction is strongly a kaline to very strongly alkaline.

Osobb Series

The Osobb series consists of shallow well drained moderately rapidly permeable soils on uplands. These soils formed in residuum derived from basic igneous rock and soft tuff. Slopes are 8 to 30 percent.

Typical pedon of Osobb very stony very fine sandy loam, in an area of Pirouette-Osobb-Rock outcrop association, about 1,800 feet south and 1,800 feet west of the northeast corner of sec. 22 T. 19 N., R. 25 E.

A1—0 to 1 inch light brownish gray (10YR 6, 2) very story very fine sandy toam, dark grayish brown (10YR 4/2) moist, weak medium platy structure soft, very finable, nonsticky and nonpiastic, many very fine interstitial pores, 20 percent peobles, 25 percent cobbies, and 15 percent stones, strongly

effervescent, moderately askaline abrupt smooth boundary

C1ca—1 to 4 inches, light gray (10YR 7/2) very story pam, brown (10YR 5/3) moist; moderate medium and fine subangular brocky structure, siightly hard, very finable, slightly sticky and slightly plastic; few fine and common very fine roots, many very fine tubular pores, 20 percent pebbles, 35 percent cobbies, and 1 percent stones, violently effervescent, strongly alkaline, clear wavy boundary

C2—4 to 11 inches, pale brown (10YR 6-3) extremely cobbly loam brown (10YR 4/3) most, moderate tine subangular blocky structure, slightly hard, fnable is ghtly sticky and slightly plastic few medium roots and common tine and very fine roots, few fine and common very fine lubular pores. 35 percent pebbles, 25 percent cobbles, and 1 percent stones is ightly effervoscent, strongly a kaline labrupt wavy boundary.

C3casim--11 to 12 inches, indurated silical and lime cemented duripan

R—12 inches tull bedrock, coallings of silica and time in tractures.

Depth to the indurated duripan is 8 to 20 inches. The duripan is 1/2 to 5 inches thick. Depth to the bedrock is 9 to 30 inches. The profile is loam, very fine sandy loam, or I he sandy loam that is 12 to 18 percent clay and 55 to 80 percent rock fragments, mostly cobbies and stones.

Otomo Series

The Olomo series consists of very shallow well drained, moderately rapidly permeable soils on old a turial lans. These soils formed in alluvium derived from mixed rock sources. Slopes are 4 to 15 percent.

Typical pedon of Otomo gravelly sandy loam 4 to 15 percent slopes, about 800 feet north and 100 feet east of the southwest corner of sec. 30, T. 12 N, R. 25 E.

A1—0 to 1 inch, light brownish gray (10YR 6/2) gravely sandy loam dark grayish brown (10YR 4/2) moist, weak thin platy structure, slightly hard, very finable nonsticky and nonplastic many fine vesicular pores slightly effervescent, 25 percent pebbles, strongly alkeline abrupt smooth boundary.

C1—1 to 4 notes, ight yellowish brown (10YR 6/4) gravery sandy loam, dark yellowish brown (10YR 4/4) moist, weak medium subangular blocky structure is ghtly hard, very friable, nonsticky and nonplastic, few medium roots common fine roots, and many very fine roots; many fine and very fine tubular poresistrongly effervescent. 25 percent peobles, strongly alkaline; clear smooth boundary.

C2cas—4 to 10 inches, very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist, massive; soft, very friable, nonsticky and nonplastic

many medium, fine and very fine roots many very fine interstital pores. 30 percent hard durinodes, 45 percent peobles, strongly effervescent, strongly alkaine, abrupt wavy boundary.

C3cas m—10 to 23 inches, white (10YR 8/2) and pale brown (10YR 6/3) silica- and lime-cemented indurated dunpani pale brown (10YR 6/3) moist dark yellowish brown (10YR 4/4) silica laminae massive extremely hard: violently effervescer tistrongly alkatine, gradual wavy boundary.

C4casi—23 to 60 inches, light gray (10YR 7/2) extremely gravelly loamy sand, grayish brown (10YR 5/2) moist, massive, loose, noisticky and nonplastic, many very line interstitual pores, 20 percent hard durinodes, wolently effervescent, 55 percent pebbles, very strongly alkaine.

Depth to the duripan is 6 to 14 inches. The control section has 5 to 18 percent clay and 35 to 60 percent rock fragments mostly pebbies. Reaction is moderately to very strongly alkaline. The profile is noneffervescent to violently effervescent above the duripan. The duripan has 1 or more continuous, indurated laminae in the upper part.

The part of the C horizon below the duripan has 35 to 80 percent rock fragments

Parran Series

The Parran series consists of very deep, somewhat poorty drained, very slowly permeable soils on ako plains and basins. These soils formed in lacustrine sediment derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedan of Parran sity clay loam, about 2,940 feet south of the northwest corner of sec. 23, T. 15 N. R. 25 E.

Atsa—0 to 1 inch, grayish brown (10YR 5/2) sitty clay loam, dark grayish brown (10YR 4/2) moist, massive; slightly hard, firm, sticky and plastic, common fine and medium tubular pores, strongly alkaline; abrupt smooth boundary

C1sa—1 to 3 inches, grayish brown (10YR 5/2) si ty clay loam, very dark grayish brown (10YR 3/2) moist; massive, soft, firm, sticky and plastic; slightly effervescent; 4.8 percent salt, strongly a kaline, about smooth boundary.

C2sa—3 to 7 inches, dark grayish brown (10YR 4/2) sity clay, very dark grayish brown (10YR 3/2) moist, many white (10YR 8/2) sait crystals, massive slightly hard, firm, sticky and plastic, few medium and fine roots few fine and medium tubular pores, slightly effervescent, 5.4 percent salt, strongly alkaline; clear smooth boundary

C3sa—7 to 18 inches, dark grayish brown (10YR 4/2) sitty clay, very dark grayish brown (10YR 3/2) moist:

few pale brown (10YR 6/3) time nodules and common white (10YR 8/2) salt crystals, massive, hard firm sticky and plastic, few medium and fine roots, few fine and very fine tubular pores, slightly effervescent matrix and strongly effervescent lime nodules 3.4 percent salt, strongly alkaline clear smooth boundary.

C4sa—18 to 28 inches, dark grayish brown (10YR 4/2) si ty diay, very dark grayish brown (10YR 3/2) moist common fine faint mothes, massive hard firm sticky and prastic few fine and very fine fubular pores strongly effervescent. 2.3 percent salt strongly alkaline, clear smooth boundary.

C5sa—28 to 40 inches, grayish brown (10YR \$72) sity clay loam, dark grayish brown (10YR 472) moist common line faint mottles, massive hard triable slicky and slightly plastic, few fine and very line tubular pores, slightly effervescent, 2.3 percent salt strongly aikaline, gradual smooth boundary

C6—40 to 72 inches, pale brown (10YR 6/3) sitty diay barn I nelly stratified with pamy fine sand brown (10YR 4/3) motst massive hard, firm sticky and plastic is ightly offervescent, strongly altialine.

The control section is a ty clay loam, silty dray or dray that is 35 to 55 percent dray. The salid hor zon is 9 to 40 notes thick and has 2 to 6 percent salt. Some pedons have a secondary salid hor zon between depths of 24 and 36 inches because of the water table being artificially lowered. Lime concretions or lime noduces are present in most pedons. Below a depth of 40 inches the profite has thin lenses of loam to loanty fine sand. Reaction of the profite is strongly a kaline or very strongly a kaline.

Patna Series

The Patha series consists of very deep, somewhat excessively drained, moderately rapidly permeable soils on take plains relict lacustrine deitas, and dunes and in pockets on hillsides. These soils formed in basin fill material and editan deposits derived from mixed rock sources. Slopes are 0 to 30 percent.

Typical pedon of Patha fine sand 4 to 15 percent siopes, about 1,650 feet south and 2,550 feet west of the northeast corner of sec. 17, T 12 N R 25 E

- A1—0 to 5 inches, brown (10YR 5/3) fine sand, dark brown (10YR 4/3) moist single grain; loose nonsticky and nonplastic few fine and many very fine roots, many very fine interstitial pores, heutral abrupt smooth boundary.
- 82t -5 to 11 inches yellowish brown (10YR 5/4) fine sandy loam dark yellowish brown (10YR 4/4) moist weak coarse subangular blocky structure hard, very finable slightly sticky and slightly plastic, few fine and medium roots and common very fine roots many very fine interstitial pores and few very fine

tubular pores; many thin and few moderately thick clay films on peds and bridging mineral grains neutral clear wavy boundary.

- B3t—11 to 21 inches brown (10YR 5/3) fine sandy roam dark brown (10YR 4/3) moist; massive sightly hard, very fnable, nonsticky and slightly prastic, tew fine and medium roots and common very line roots, many very line interstitial pores common thin clay bridges, neutral; clear wavy boundary.
- C1—21 to 41 inches brown (10YR 5/3) loamy (the sand dark brown (10YR 4/3) moist massive, alightly hard, very frable nonsticky and nonplastic, common medium line and very fine roots, many very fine interstitial pores mildly alkaline gradual wavy boundary.
- C2—41 to 60 inches, prown (10YR 5/3) loamy fine sand, dark brown (10YR 4/3) moist, massive, soft, very triable nonsticky and nonplastic, few fine and very fine roots, many very fine interstitlat pores, mild y atkaline.

The solum is 20 to 40 inches thick. Reaction is neutral or middly alkaline in the solum and middly alkaline to moderately alkaline in the C horizon. Some pedons are moderately alkaline to strongly a kaline below a depth of 40 inches.

The 8t horizon is 10 to 22 inches thick, it commonly is line sandy loam, but in some pedons, it is sand to sandy loam, and has lame ae of sandy loam to sandy clay loam. The lamer ae are 0.5 to 2 inches thick and commonly are higher in chroma when dry than is the material between the lamerise. The horizon averages 10 to 18 percent clay.

The C horizon is coarse sand to loamy fine sand A IC horizon is below a depth of 40 inches in some pedons it consists of sity stratified lake sediment with relict iron mottles, however, some pedons may be gravelly sand to loamy sand

Perazzo Series

The Perazzo senes consists of very deep, well drained, moderately slowly permeable so is on old a uvial fans. These soits formed in alluvium derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of Perazzo grave ly loam, 2 to 8 percent slopes, about 600 feet south and 2,300 feet west of the northeast comer of sec. 19 T. 13 N. R. 24 E.

- A11—0 to 1 inch ipale brown (10YR 6.3) very gravely sandy loam brown (10YR 4/3) moist; massive soft very fnable, nonsticky and nonplastic; few very fine roots, many very fine interstitial pores; 40 percent pebbles, neutral; abrupt wavy boundary
- A12—1 to 4 inches, light brownish gray (10YR 6/2) loam dark grayish brown (10YR 4/2) moist.

massive, soft very friable, nonsticky and slightly plastic, few very fine roots, many medium and fine vesicular pores, 10 percent pebbles, neutral; abrupt smooth boundary

B21t—4 to 8 inches: brown (7.5YR 5.4) gravely sandy clay loam, dark brown (7.5YR 4/4) moist; massive hard, very friable, sticky and plastic, few fine and common very fine roots, few fine and common very fine tubular pores, 15 percent fine peobles, common thin clay bridges ineutral, clear smooth boundary.

B221—8 to 13 inches brown (7.5YR 5/4) very grave by sandy clay loam, brown (7.5YR 4/4) moist, massive sightly hard, very friable, slightly sticky and slightly plastic common line and many very line roots, few fine and common very fine tubular pores, 60 percent pebbles, common thin clay bridges, slightly acid clear wavy boundary.

C1—13 to 21 inches, pinkish gray (7.5YR 6-2) extremely grave y sendy loam, brown (7.5YR 4-4) moist massive, sightly hard, very fnable, nonsticky and nonplastic few very fine roots, many fine and very fine interstital pores, 65 percent pebbles, few coallings of lime on underside of pebbles, neutral clear wavy boundary.

I C2ca—21 to 26 riches, pale brown (10YR 6/3) extremely gravelly loamy sand, brown (10YR 4/3) moist, massive slightly hard, very friable nonsticky and nonplastic few very fine roots, many fine and very fine interstitial pores. 70 percent pebbles, strongly effervescent, strongly alkaline gradual wavy boundary.

C3ca—26 to 60 inches paie brown (10YR 6-3) extremely gravelly loamy sand, brown (10YR 4-3) moist single grain, loose nonsticky and nonplastic few very fine roots, many fine and very fine marst tial pores, 65 percent pebbies, strongly effervescent ivery strongly alkaline.

Thickness of the solum is 10 to 20 inches.

The BI horizon is clay loam or sandy clay loam that

averages 20 to 30 percent day The horizon has 15 to 35 percent pebb es in the upper part, 45 to 60 percent pebb es in the upper part, 45 to 60 percent pebb es in the lower part, and averages 35 to 50 percent rock fragments. Reaction is neutral or midly alkaline.

The C horizon commonly is extremely gravelly sand or loamy sand with some strata of sandy loam. It averages 60 to 80 percent rock fragments. Reaction is neutral to very strongly askaline.

Pirouette Series

The Pirouette senes consists of shallow well drained moderately slowly permeable soils on hills and plateaus. These soils formed in residuum derived from andesite and basalt. Stopes are 0 to 30 percent.

Typical pedon of Pirouette extremely storry fine sandy roam, 15 to 30 percent slopes, about 850 feet north and

1.450 feet west of the southeast corner of sec. 13, T. 18 N. \pm 25 E.

- A11 -0 to 1 inch, pale brown (10YR 6/3) extremely stony fine sandy loam, brown (10YR 4/3) moist weak thick platy structure, soft, very friable, nonsticky and nonplastic, many very fine interstilla pores, 30 percent pebbles, 20 percent cobbies, and 15 percent stones, very strongly alkaline; abrupt smooth boundary.
- A12 -1 to 4 inches, light brownish gray (10YR 6/2) very cobbly fine sandy loam, dark grayish brown (10YR 4/2) moist, moderate thick and medium platy structure slightly hard, very friable, nonstickly and slightly plastic, few fine and many very fine roots many very fine tubular pores, 30 percent pebb as 20 percent cobbles, and 5 percent stones, very strongly alkaline, abrupt wavy boundary.
- 821—4 to 11 inches, light brown (7.5YR 6/4) very cobbly cay loam, brown (7.5YR 5/4) moist, moderate fine and medium prismatic structure, very hard firm sticky and prastic common fine and very fine roots few fine and very fine tubular pores. 30 percent peobles, 15 percent cobbles, and 2 percent stones, many thin and moderately thick clay bridges and common thin and moderately thick clay films on peds and ining pores, very strongly alkaline, clear wavy boundary.
- 83t ~11 to 14 inches brown (7.5YR 5/4) very cobbiy cay toam, brown (7.5YR 5/4) moist, weak coarse prismatic structure parting to moderate medium and fine subangular blocky very hard, firm, sticky and very plastic common fine and very time roots common fine and very fine tubular pores. 30 percent pebbles, 15 percent cobbres, and 4 percent stones, strongly alkaline, clear wavy boundary.
- C1casi—14 to 18 inches light brown (7.5YR 6/4) very cobbly sit loam, brown (10YR 5/4) moist, massive slightly hard, very fnable slightly sticky and slightly plastic few fine and very fine roots, common fine and very fine tubular pores. 30 percent graves, 15 percent cobbles, and 5 percent stones, si ica and lime coatings on underside of rock fragments; very strongly alkaline; abrupt wavy boundary.
- C2sicam—18 to 23 inches, white indurated duripan, abrupt wavy boundary
- R. 23 inches, hard andesite silica and lime coatings in fractures.

The scrum is 8 to 14 inches thick. Depth to the indurated duripan is 11 to 20 inches. Bedrock is at a depth of 12 to 23 inches. Reaction is moderately alkaline or strongly alkaline.

The Bt horizon is clay foam that is with 35 to 50 percent rock fragments and averages 28 to 35 percent clay

Pizene Series

The Pizene series consists of very deep, well drained moderately slowly permeable soils on old autivial fans and stream terraces. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 4 percent.

Typical pedon of Pizene sandy loam, 0 to 4 percent slopes about 300 feet north and 1 050 feet east of the southwest corner of sec. 4, T. 12 N , R. 25 E.

- A11 O to 2 inches pale brown (10YR 6-3) light sandy loam brown (10YR 4-3) most massive soft, very friable honslicky and honplastic, common very fine roots, many fine and very fine vesicular and interstital pores, moderately alkaline, abrupt smooth boundary.
- A12—2 to 6 nones, light brownish gray (10YR 672) sandy loam, dark grayish brown (10YR 4-2) moist, massive soft, very friable nonsticky and nonplastic common very fine roots, few fine and many very fine interstitial pores, moderately alkaine, abrupt wavy boundary.
- B2t—6 to 14 nches, brown (10YR 5-3) sandy day learn dark brown (10YR 473) moist, moderate coarse prismatic structure very hard firm sticky and plastic, common medium roots, few fine roots, and many very fine roots many very fine tubular pores common thin and moderately thick clay films on peds and ining pores and many thin and moderately thick clay films bridging sand grains, very strongly alkaline clear wavy boundary.
- B3tca—14 to 21 inches brown (10YR 5/3) sandy day loam, dark brown (10YR 4/3) moist, moderate fine angular blocky structure slightly hard, frable slightly sticky and slightly plastic, few line and common very fine roots many very fine tubular pores, common thin day films on peds, lining pores, and bridging sand grains, strongly effervescent very strongly alkaline diear wavy boundary.
- C1ca—21 to 32 inches light brownish gray (10YR 6 2) fine sandy loam, dark grayish brown (10YR 4/2) moist slightly hard friable slightly sticky and nonplastic, few fine and common very fine roots many very fine tubular and interstibal pores, common medium soft masses of lime; strongly effervescent, very strongly alkaline; gradual wavy boundary
- C2—32 to 60 inches, light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist massive; slightly hard, friable, nonsticky and nonplastic, few very fine roots many very fine tubular and interstitia pores, slightly effervescent strongly alkaline.

The sourm is 12 to 25 inches thick. Depth to free carbonates is 12 to 18 inches

The Bt horizon is sandy clay roam or heavy sandy roam that is 18 to 25 percent clay and 15 to 35 percent exchangeable sodium. Reaction is strongly alkaline

The C horizon is sandy foam or the sandy foam that is 5 to 10 percent day. The horizon has distinct accumulations of secondary carbonates in the upper part but is less than 15 percent calcium carbonate equivalent. Reaction is moderately alkaline to very strongly a kaline.

Ravenell Series

Ravenell senes consists of very shallow, well drained slowly permeable soils on dissected pediments. These soils formed in a luxium derived from mixed igneous rocks over residuum derived from Tertiary sediment. Siopes are 8 to 10 percent.

Typical pedon of Ravenell very grave ly loam, 8 to 30 percent slopes, about 50 feet north and 2 250 feet east of the southwest corner of sec 3, T 7 N R 27 E

- A11—0 to 1 inch grayish brown (10YR 5/2) very gravelly loam, very derk grayish brown (10YR 3/2) moist, weak medium granu ar structure, soft, very frable nonsticky and nonplastic few very fine roots, many very fine interstitial pores, 35 percent pebbles, 10 percent cobbles, and 2 percent stones, neutral abrupt smooth boundary.
- A12—1 to 3 inches, brown (10YR 5/3) very gravely cam dark brown (10YR 3/3) moist weak medium and fine subangular blocky structure, si ghtly hard, triable, slightly sticky and sightly plastic few fine and many very fine roots, many very fine interstitia pores 30 percent pebbles, 10 percent cobbles, and 2 percent stones, neutral clear smooth boundary.
- 92t—3 to 7 inches, brown (7 5YR 5/4) very gravely sandy clay dark brown (7 5YR 4/4) moist, strong medium and fine subangular blocky structure, hard, firm, very sticky and plastic, few medium roots, common fine roots, and many very fine roots, common fine and very fine tubular pores, continuous thick and moderately thick clay films, 30 percent pebbles, 10 percent cobbies, and 1 percent stones, neutral, abrupt wavy boundary.
- Cr—7 to 48 notes, soft, weathered sandstone; clay coatings coatings of lime and root mats along fracture planes diminishing with depth

Thickness of the solum and depth to the paralithic contact are 6 to 14 inches. Reaction is neutral or mildly a kaline throughout the solum

The B2t horizon is very grave ly sandy clay or very gravelly day that is 35 to 60 percent rock fragments, mostly peobles, and 35 to 45 percent clay

The ICr horizon is soft sandstone, mudstone, or congromerate.

Ravenell Variant

Ravene Variant consists of shallow well drained slowly permeable soils on piateaus. These soils formed in residuum derived from granitic bedrock. Slopes are 4 to 15 percent.

Typical pedon of Ravenell Variant gravelly sandy loam in an area of Ravenell Variant-Devils Variant association about 7,400 feet southwest of VABM 8620 T 9 N R 26 E

- A11—0 to 2 inches, very paie brown (10YR 7/3) gravely sandy loam, dark brown (10YR 4/3) moist, moderate tine and medium subangular blocky structure, soft very friable inonsticky and nonplastic many fine and very fine interstital pores 20 percent pebbles, mildly alkaline; clear smooth boundary.
- A12—2 to 4 inches pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist, moderate fine and medium subangular blocky structure soft, very finable, sticky and plastic many fine and very fine roots, many fine and very fine nterstitial pores, 10 percent pebbles mildly alkaline ic ear smooth boundary.
- AB—4 to 7 inches, brown (10YR 5-3) loam, dark brown (10YR 3/3) moist important medium and coarse subangular blocky structure is ightly hard, friable sticky and plastic common line and very fine roots common line and very fine interstitial pores and few line tubular pores, 10 percent pebbles, mildly alkeline, clear wavy boundary.
- B211—7 to 11 nches, yellowish brown (10YR 5/4) gravelly diay dark brown (10YR 3/3) moist strong medium and coarse angular blocky structure, slightly hard friable very sticky and very plastic, common fine and medium roots, common fine tubular pores 15 percent pebbles, many moderately thick and thick day films on peds and lining pores, mildly alkaline; clear smooth boundary.
- B22t—11 to 15 inches, ye owish brown (10YR 5/4) very grave ly day, dark yellowish brown (10YR 4/4) moist, strong fine and med um subangular blocky structure; hard, firm very sticky and very plastic; few fine and medium roots, common fine tubular pores 40 percent pebbles; continuous thick day films on peds and lining pores, mildly alkaline, clear wavy boundary.
- Cr—15 inches soft fractured granite: clay coatings extending into fractures.

The thickness of the solum and depth to the paralithic contact are 12 to 20 inches in some pedens the bedrock is fractured. Reaction is neutral or mildly a kaline.

The Bt horizon averages gravelly clay or gravelly clay loam that is 35 to 50 percent clay. The lower part of the horizon commonly is very gravelly clay.

Rawe Series

The Rawe series consists of very deep, well drained slowly permeable soils on smooth or dissected alluvial lans. These soils formed in gravely a uvium derived mainly from basic igneous and granitic rocks. Slopes are 2 to 15 percent.

Typical pedon of Rawe gravelly sandy loam, 4 to 15 percent slopes, about 1,100 feet south and 1,300 feet east of the northwest corner of sec. 28 T. 13 N., R. 25 E.

- A1—0 to 1 mich. light gray (10YR 7, 2) gravelry sandy loam, dark grayish brown (10YR 4/2) moist, weak thick platy structure, slightly hard very friable slightly sticky and slightly plastic many fine and very fine vesicular pores, 25 percent pebbies ineutral abrupt smooth boundary.
- B11—1 to 4 inches brown (7.5YR 4/2) diay loam brown (7.5YR 4/2) moist, moderate very fine subangular blocky structure hard fnable very sticky and very plastic, few very fine roofs; many very fine interstitial pores, 10 percent pebbles ineutral, abrupt smooth boundary.
- 821—4 to 7 inches, brown (7 5YR 4/2) gravelly city brown (7 5YR 4/3) moist strong fine subangular blocky structure, hard, fnable, very sticky and very plastic few medium and fine roots and common very fine roots, many fine and very fine tubular pores, common thin and moderately thick clay films 20 percent peobles, neutral abrupt wavy boundary.
- B3tca—7 to 10 inches, brown (7.5YR 4/2) gravelly clay loam, brown (7.5YR 4/2) moist, moderate fine subangular blocky structure, hard finable, very sticky and very plastic, few medium and fine roots and common very fine roots, many fine and very fine tubular pores, 30 percent pebbles, strongly effervescent, moderately alkaline; clear wavy boundary.
- C1ca—10 to 19 inches paie brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist, massive; soft, very friable, nonsticky and nonplastic, few medium and fine roots and common very fine roots, common fine and very fine tubular pores, 55 percent pebbles, strongly effervescent, very strongly aikaline gradual wavy boundary
- IIC2—19 to 60 inches, light brownish gray (10YR 6/2) extremely gravelly coarse sandy loam dark grayish brown (10YR 4/2) moist, massive soft, very frlable, nonsticky and nonplastic, few very fine roots, many fine and very fine interstitial pores, 50 percent pebbles, strongly effervescent, very strongly alkaline.

The thickness of the solum is 10 to 23 inches Reaction is neutral to moderately alkaline in the solum and moderately alkaline to very strongly alkaline in the C horizon. Some pedons do not have carbonates in the ower part of the profile. A peoble mulch or desert payement is common on the surface.

The BI horizon is mostly dray or gravely dray but heavy dray loam is in the transitional parts. The horizon averages 40 to 50 percent dray and is 5 to 25 percent pebb es. It has common to continuous, thin to thick dray times.

The C honzon is very gravely or extremely gravely sandy loam or coarse sandy loam that is 35 to 80 percent angular pobbles and cobbles and 5 to 8 percent as Lime commonly coats rock fragments.

Rebel Series

The Rebel series consists of very deep, we' drained moderately rapidly permeable so is on alluvia, fans. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedan of Rebel sandy loam 0 to 2 percent signs, about 2,500 feet south and 1,500 feet east of the

northwest corner of sec. 2 T. 11 N. R. 29 F.

Ap—0 to 5 inches, brown (10YR 5/3) sandy loam, dark grayish brown (10YR 4/2) moist, massive slightly hard friable honsticky and honorastic, common very fine roots, few very fine interstifial pores, heutral clear smooth boundary.

A12—5 to 14 inches, brown (10YR 5-3) sandy loam dark grayish brown (10YR 4-2) moist, massive slightly hard, frable slightly sticky and nonplastic many very fine roots and common fine and medium roots common very fine tubular and interstitia pores, neutral iclear smooth boundary.

B2—14 to 22 inches, yellowish brown (10YR 6/3) sandy loam dark brown (10YR 4/3) moist, massive; slightly hard, very fnable, slightly sticky and nonplastic common tine and very fine roots common very fine tubular pores and few very fine interst,tial pores, neutral, gradual smooth boundary

C1ca—22 to 30 inches, yellowish brown (10YR 5/4) sandy loam, brown (10YR 4/3) moist, massive; hard friable, nonsticky and nonplastic few fine and very fine roots, common very fine tubular pores and many very fine interstitial pores slightly effervescent; moderately alkaline, gradual smooth boundary.

C2ca—30 to 47 nches, yellowish brown (10YR 5/4) coarse sandy loam dark yellowish brown (10YR 4/4) moist massive hard, friable honsticky and nonplastic; few fine and very fine roots; common very fine interstitial pores, strongly effervescent moderately alkaline clear smooth boundary

C3ca—47 to 60 inches yellowish brown (10YR 574) coarse sandy loam, dark yellowish brown (10YR 474) moist: massive, slightly hard friable honsticky and honplastic: few very fine interstitial pores slightly effervescent, moderately alkaline

Thickness of the solum and depth to line are 15 to 24 inches. The control section dominantly is sandy pain or toam with some coarse sandy foam. It has as much as 10 percent fine pebbles and has 10 to 18 percent clay Strata that have as much as 50 percent pebbles are common in the lower part of the profile in some pedons. Reaction is neutral or midty alkaline in the solum and mildly alkaline to strongly alkaline in the C horizon.

Reno Series

The Reno series consists of moderately deep, we'll drained, very slowly permeable soils on old fans and pediments. These soils formed in allow um derivad from mixed rock sources. Slopes are 2 to 15 percent.

Typical pedon of Reno gravelly sandy bam 2 to 4 percent slopes, about 1 100 feet south and 2 100 feet west of the northeast corner of sec. 25 T. 16 N. R. 20

- A1—0 to 1 inch, pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist weak, bick platy structure, soft very frable nonsticky and nonplastic, few line roots, many fine and very fine vesicular and interstitial pores 35 percent peobles, neutral abrupt smooth boundary.
- A2—1 to 5 inches light gray (10YR 7/2) sandy foam dark brown (10YR 3/3) moist, weak thin platy structure soft very friable, slightly sticky and slightly plastic few tine and very fine roots, many tine and very fine vesicular pores, 10 percent pebbles neutral, clear smooth boundary.
- B1--5 to 10 inches, brown (10YR 5/3) gravelly dam dark brown (10YR 3/3) moist, moderate medium and fine subangular blocky structure, and young finable, slightly sticky and slightly plast and commend many fine tubular pores, many very thin clay coatings on sand grains, 15 percent pebbles and 5 percent cobbles, neutral abrupt wavy boundary.
- 92t—10 to 22 inches, dark yellowish brown (10YR 5/4, gravelly clay, dark yellowish brown (10YR 4/4) moist, strong medium and fine prismatic structure, very hard, firm, very sticky and very plastic, many thin and moderately thick clay films on vertical and honzontal ped faces and lining pores. 20 percent pebbies and 5 percent cobbles, neutral; clear wavy boundary.
- 53t—22 to 27 inches, yellowish brown (10YR 5/4) gravelly clay, yellowish brown (10YR 5/4) moist strong medium and fine angular blocky structure, very hard, firm livery sticky and very plastic, many thirriand moderately thick clay films on vertical and horizontal ped faces and fining pores: 30 percent pebbies and 5 percent cobbles, neutral, abrupt wavy boundary.

- C1cas m—27 to 33 inches, white and very pale brown (10YR 8/2 and 7/3) indurated dunpan, brown (10YR 5/3) moist, continuous indurated laminae 1 to 2 m limeters thick, massive extremely hard; violently effervescent; moderately a kaline: gradual wavy boundary
- IC2casim—33 to 41 inches white and very pale brown (10YR 8/2 and 7/3) strongly slica- and time-cemented dutipan brown (10YR 6/3) moist, massive, very hard very firm, violently effervescent strongly alkaine, gradual wavy boundary.
- I C3ca—41 to 60 nches brown (10YR 5/3) extremely gravelly loamy sand dark brown (10YR 4/3) moist massive; slightly hard. Inable honsticky and nonpastic many very line interstitial pores, 50 percent grave and 15 percent stones, moderately a kaline.

Thickness of the solum is 20 to 36 inches. Depth to the indurated duripan is 20 to 40 inches. Reaction above the duripan is slightly acid to mildly alkaline, and 4 is mildly alkaline or moderately alkaline below the duripan

The Bt horizon is sandy clay ic ay or gravelly clay that avorages 35 to 60 percent clay. The horizon contains 10 to 35 percent pebbies and cobbies.

The dunpan is a ternating layers of indurated and strongly camented material in most pedons

Reno Variant

The Reno Variant consists of shallow, well drained moderately permeable soils on mountainsides. These so a formed in collustion derived mainly from andesitic rocks with some influence of ashy loess. Slopes are 30 to 50 percent.

Typical pedon of Reno Variant very story sandy loam in an area of Old Camp-Reno Variant-Hyloc association 1 600 feet north and 2 850 feet east of the southwest corner of sec. 1, 7 7 N R 26 E

- A11—0 to 4 inches, brown (10YR 5/3) very stony sandy oam dark brown (10YR 3/3) moist, weak medium and coarse granular structure soft, very frable nonsticky and nonplastic few fine and common very line roots, many very fine interstitial pores, 5 percent pebbles, 15 percent cobbles, and 20 percent stones neutral; clear smooth boundary.
- A12—4 to 11 noties, ight brownish gray (10YR 6/2) stony dam, brown (10YR 4/3) moist, weak medium and line subangular blocky structure; slightly hard, very fnable, slightly sticky and slightly plastic; few medium roots, common fine roots, and many very tine roots, many very fine intersubal pores and few fine tubular pores, 10 percent pebbles, 5 percent cobbles, and 10 percent stones, neutral, clear smooth boundary.
- 82t—11 to 18 inches, pale brown (10YR 6/3) loam, brown (10YR 5/3) moist, moderate medium and fine

- subangular brocky structure: very hard, friabre, sticky and plastic; common medium and coarse roots and many fine and very fine roots, tew fine and many very fine tubular pores, common thin diay films on peds and lining pores, 5 percent publies, 5 percent cobbles, and 1 percent stones, neutral: abrupt smooth boundary.
- C1sicam—18 to 24 inches, light gray (10YR 7/1) strongly stice- and lime-comented duripan discontinuous thin indurated laminae, abrupt wavy boundary.
- R 24 inches, hard andesite, slica and time coatings in fractures.

Thickness of the solum and depth to the duripan are 15 to 20 inches. The duripan is 2 to 16 inches thick. Depth to unweathered bedrock is 20 to 36 inches. The 82t her zon is 20 to 27 percent day.

Risue Series

The R sue series consists of shallow, well drained, slowly permeable soils on old dissected alluvia, lans. These soils formed in alluvium derived from basic igneous rock. Slopes are 0 to 15 percent.

Typical pedon of Risue extremely stony oam 8 to 15 percent slopes about 400 feet north and 500 feet east of the southwest corner of sec. 16, T. 18 N, R. 24 E.

- A1—0 to 1 inch light gray (10YR 7-2) extremely stony loam grayish brown (10YR 5/2) moist, weak medium platy structure: soft, friable is ightly sticky and slightly plastic few very line roots many fine and very fine vesicular pores 70 percent pebbles, cobbles, and stones, neutral abrupt smooth boundary.
- B21(—1 to 4 inches, brown (10YR 5/3) clay dark brown (10YR 4/3) moist, strong fine subangular blocky structure; slightly hard, firm, very sticky and very plastic, few medium and fine roots and common very fine roots, many very fine tubular pores; continuous thin clay films on peds, neutral clear smooth boundary.
- 8221—4 to 14 inches, dark ye owish brown (10YR 4/4) cay dark yellowish brown (10YR 4/4) moist, moderate coarse subangular blocky structure; very hard, firm, very sticky and very prastic, few medium and fine roots and common very fine roots, few fine and many very tubular pores, continuous pressure cutans on peds, continuous thin clay films fining pores, neutral; abrupt smooth boundary
- B3tca—14 to 16 inches, light yellowish brown (10YR 6-4) gravelly clay loam, yellowish brown (10YR 6-4) moist, massive hard, firm, sticky and plastic, few fine and common very fine roots: few fine and common very fine tubu at pores. 20 percent

pebbles; strongly effervescent: moderately alkafine abrupt smooth boundary

C1sicam—15 to 33 inches, white (10YR 8 2) indurated duripan pale brown (10YR 6/3) moist, massive extremely hard, extremely firm, violently effervescent imoderately alkaline, abrupt smooth boundary.

C2sicam: 33 to 60 inches, white (10YR 6/2) alternating layers of weakly silica-cemented to strongly silica-cemented very graveily sandy loam, very hard, firm, violently effervescent, moderately alkaline.

Thickness of the solum and depth to the dunpan are t0 to 20 inches

Reaction of the A horizon is neutral or midfy alkaline. The Bt horizon is diay sandy clay or diay loam that is 0 to 20 percent peobles and 35 to 50 percent clay. Reaction commonly a neutral, but it is moderately alkaling in the lower part in some pedons.

The duripan is 10 to 24 inches thick. The material below the duripan is alternating layers of noncemented to strongly cemented material.

Roloc Series

The Roloc series consists of shallow, we ill drained moderately permeable soils on mountainsides. These soils formed in residuum derived from granitic bedrock Siopes are 15 to 75 percent.

Typica pedan of Roioc grave ly sandy loam 15 to 50 percent slopes, in an area of Trid-Roioc-Ont association about 1 200 feet east and 1,600 feet north of the southwest corner of sec. 12, T. 14 N. R. 22 E.

A11—0 to 2 inches, dark grayish brown (10YR 4/2) grayely sandy loam, very dark brown (10YR 2/2) moist, weak coarse subangular blocky structure, soft very fnable, honsticky and honplastic, many very fine and few fine roots, common very fine tubular pores, 15 percent fine pebbies, neutral abrupt smooth boundary.

A12—2 to 8 inches, grayish brown (10YA 5/2) gravelly saridy dam very dark grayish brown (10YA 3/2) moist, weak coarse subangular blocky structure soft, very friable, nonsticky and nonplastic, common very fine and I ne roots, few very fine tubular pores. 15 percent fine pebbles, neutral, abrupt smooth boundary.

A3—8 to 11 inches, brown (10YR 5/3) very gravelly coarse sandy loam, dark brown (10YR 3/3) moist, weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic common very fine and fine roots and few medium roots, few very fine and medium tubular pores, 35 percent fine pebbles neutral, abrupt smooth boundary.

B2t—11 to 14 inches: pale brown (10YR 5/3) very gravelly coarse sandy loam, dark brown (10YR 4/3) moist, moderate coarse subangular blocky structure

slightly hard, very fnable slightly sticky and slightly plastic, few very fine, fine, and medium roots, common very fine and few medium tubular pores, common thin clay films coating sand grains 45 percent fine pebbles, neutral, abrupt smooth boundary.

831 14 to 17 inches, pale brown (10YR 6/3) very gravelly coarse sandy loam, dark brown (10YR 4/3) most, massive slightly hard, very friable, nonsticky and nonplastic, few medium roots, common very line tubular pores, few thin clay films coating sand grains and lining pores, 40 percent line pebbles, abrupt wavy boundary.

Cr—17 to 28 inches, weathered gran tic bedrock, clay films coating fracture planes

The moric opipedon is 7 to 12 inches thick. Thickness of the solum and depth to a paralithic contact are 14 to 20 inches. Reaction is slightly acid or neutral.

The Bt horizon has 35 to 50 percent fine gravel and 10 to 18 percent day

Rose Creek Series

The Rose Creek series consists of very deep, poorly drained, moderately rapidly permeable so a on narrow flood plains. These soils formed in stratified loamy and sandy affuvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Rose Creek loam, about 2,110 feet west and 1,580 feet south of the northeast corner of sec. 26 T. 16 N. R. 21 E.

- Ap—0 to 8 inches, grayish brown (10YR 5/2) oam very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure, slightly hard, friable slightly sticky and slightly prastic, common very fine and fine roots and few medium roots, common line interstitial pores and few fine tubular pores, neutral abrupt wavy boundary.
- A1—8 to 18 inches, grayish brown (10YR 5/2) I ne sandy loam, dark brown (10YR 3/2) moist, massive soft, very friable, honsticky and honprastic many very fine and fine roots: many very fine interstitial pores and many fine tubular pores, heutral, abrupt wavy boundary.
- C1—18 to 32 inches, pale brown (10YR 6/3) sandy oam, dark brown (10YR 4/3) moist, massive soft very fnable, nonsticky and nonplastic, many very fine and fine roots, many very fine interstitial pores neutral abrupt smooth boundary.
- iC2 32 to 40 inches; light gray (2.5Y 7/2) silt loam, ight olive brown (2.5Y 5/4) moist, common fine distinct ye lowish brown (10YR 5/6) and strong brown (7.5YR 5/8) iron mottles; massive is ightly hard, very fnable, nonsticky and sightly plastic, few

very fine roots, few fine tubular pores, neutral, clear

wavy boundary

(C3—40 to 60 inches, light brown shigray (2.5Y 6/2) gravelly loamy sand onve brown (2.5Y 4/4) moist, common fine distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) iron mottles, massive soll, very friable industicky and honplastic few very fine and fine interstitial pores. 20 percent fine pebbles, neutral

The molic epipedon is 10 to 18 inches thick. The control section is strat fled gravelly sand to silt loam, but it averages sandy loam, fine sandy loam, or loam. Content of day averages 10 to 18 percent. These sous commonly are noncalcareous throughout the profile but are slightly cardareous in the substratum in some pedons. Reaction is neutral or middly alkaline.

A I-C2 horizon is in some pedans. Gravelly sand toarny sand and coarse sand are within a depth of 35 triches of the surface in some pedans.

Rowel Series

The Rowe series consists of shallow well drained slowly permeable so a on hills. These soils formed in residuum derived from basic igneous rocks. Stopes are 8 to 50 percent.

Typica, podon of Rowel very cobbly sandy loam 8 to 30 percent slopes, in an area of Rowel association about 800 feet south and 1 200 feet east of the northwest corner of sec. 13, T.7.N. R. 27 E.

A11—0 to 1 nch, light brownish gray (10YR 6, 2) extremely cobbily sandy loam, brown (10YR 4/3) moist weak medium platy structure soft very triable nonsticky and nonplastic, few very fine roots many very fine interstitial pores, 45 percent pebbles 25 percent cobbles, and 5 percent stones, health abrupt smooth boundary.

A12—1 to 6 inches, ight brownish gray (10YR 6/2) very cobbly sandy dam, brown (10YR 4/3) moist, weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic, few medium roots, common fine roots, and many very fine roots, many fine vesicular pores, 30 percent pebbles, 20 percent cobbles, and 5 percent stones, neutral

abrupt wavy boundary

B21—6 to 14 inches, brown (7 5YR 5/4) extremely cobbly day, brown (7 5YR 5/4) moist strong medium and fine angular blocky structure; hard, very firm, very sticky and very plastic; common medium, fine and very fine roots, few fine and common very fine pores, shiny smooth pressure faces. 20 percent pebbles, 40 percent cobbles, and 5 percent stones; mild y a kaline; abrupt wavy boundary.

R—14 to 20 inches; hard, fractured andesder clay coatings and roots in fractures

Thickness of solum and depth to bedrock are 10 to 14 inches. The profile averages 50 to 80 percent rock fragments, mostly cobbies, and 25 to 35 percent clay.

The B2t horizon has 40 to 55 percent c ay in the fine earth fraction.

Rusty Series

The Rusty senes consists of very deep well drained, moderately slowly permeable soils on take plains. These soils formed in facustine sediment reworked by wind Siopes are 0 to 2 percent.

Typical pedon of Rusty sand 0 to 2 percent slopes about 200 feet south and 300 feet east of the northwest corner of sec. 5, 7, 17 N , R, 25 E.

- A11—0 to 3 inches pale brown (10YR 6/3) sand brown (10YR 5/3) moist, single grain, loose inonsticky and nonplastic, many very line and line roots, many fine interstitial pores, moderately alkaine, abrupt smooth boundary.
- A12—3 to 9 inches, light gray (10YR 7/1) loamy sand, brown (10YR 4/3) moist, moderate medium and thick platy structure, slightly hard, very friable nonsticky and nonplastic, few fine and medium roots, many very fine and fine interstitial pores, many fine vesicular pores in the lower part moderately a kaline, abrupt irregular boundary.
- 1821:—9 to 13 inches pale brown (10YR 6/3) sandy clay loam dark yellowish brown (10YR 4/4) morat strong medium and coarse columnar structure; hard very triable sticky and plastic many very tine and fine roots and few medium roots, common fine tubular pores common thin clay bridges and coatings on mineral grains, strongly alkaline, clear wavy boundary.
- iB22tca—13 to 22 inches, brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist, strong medium angular blocky structure, hard, finable, sticky and plastic, common very line and fine roots and few medium roots, many fine tubular pores, common thin clay coatings on mineral grains, many thin sit coatings on mineral grains, wolently effervescent, common fine soft masses and filaments of line strongly alkaline, clear smooth boundary.
- IIC1—22 to 34 inches, very pale brown (10YR 7/3) stratified fine sandy loam and silt loam, brown (10YR 5/3) most, massive, a ghtly hard, very fnable, nonsticky and a ghtly plastic few fine and medium roots, common fine tubular pores, slightly effervescent, strongly alkaline; abrupt wavy boundary
- IVC2—34 to 40 inches, uncoated sand: many react mottes that are strong brown (7.5YR 5/8 and 5/6) when dry or moist, single grain; loose, nonsticky and nonplastic, common fine and few medium roots:

many fine interstitial pores, slightly effervescent, strongly alkaline, clear wavy boundary

VC3: 40 to 48 inches, very pale brown (10YR 7/3) silt loam brown (10YR 5/3) moist, many relict mothes that are strong brown (7 5YR 5/8 and 5/6) when dry or moist, massive is giftly hard, very fnable, nonsticky and slightly plastic few fine roots, common fine tubular pores and few fine vesicular pores, slightly effervescent strongly alkaline, clear smooth boundary.

V C4—48 to 60 inches uncoated sand; many relict mottles that are strong brown (7 5YR 5/8 and 5/6) when dry or moist, single grain, loose, nonstickly and nonplastic many line and few medium roots, many very fine and fine interstitlal pores, slightly

ellervescent moderately alkaline

Thickness of the solum is 20 to 34 inches
Reaction of the A horizon is neutral to moderately
(kalino)

The B2t hor zon has prismatic or columnar structure in the upper part and angular blocky structure in the lower part. The horizon is sandy clay loam or loam that is 20 to 28 percentic by Roaction is strongly alkaline or very strongly alkaline.

The C horizon is strat I ed lacustrine sand to silt loam with clayey material below a depth of 40 inches in some pedons. The horizon is mildly askaline to strongly atkaline.

and is nonellervescent or sughtly effervescent.

Sagouspe Series

The Sagouspe series consists of very deep, somewhat poorly drained rapidly permeable soils on low stream terraces and flood plains. These soils formed in sandy a luvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Sagouspe sandy loam, about 700 feet north and 1 550 feet east of the southwest corner of

sec 12, T 13 N R. 25 E

A1—0 to 2 nches, light gray (10YR 7/2) sandy loam, dark grayish brown (10YR 4/2) moist: massive: slightly hard, very linable, nonsticky and nonplastic, many saltgrass rhizomes, common very fine tubular pores, slightly effervescent, strongly alkaline abrupt smooth boundary.

C1—2 to 8 inches, light brown (10YR 6/3) sandy loam, grayish brown (10YR 5/2) moist, common large faint brown (10YR 5/3) iron mottles, massive, slightly hard, very fnable, nonsticky and nonplastic, common fine and many very fine roots, few fine and many

very fine tubu ar pores, strongly effervescent, strongly alkaline abrupt wavy boundary

C2—8 to 16 nches, light brownish gray (10YR 6/2) sandy loam, grayish brown (10YR 5/2) moist, few arge faint brown (10YR 5/3) mottles, massive; sightly hard, very friable, nonshoky and nonplastic.

few very fine roots: marty very fine interstitia pores, slightly effervescent, strongly alkaline: clear wavy boundary

C3—16 to 22 inches, light brownish gray (10YR 6/2) carry sand, grayish brown (10YR 5/2) moist, few rarge faint brown (10YR 5/3) mottles, massive, sightly hard, very friable, nonsticky and nonplastic, few fine and common very fine roots, many very fine interstitial pores, slightly effervescent, very strongly alkaline, abrupt wavy boundary.

FC4ca—22 to 29 inches ivanegated light brown shigray (10YR 6/2) and pale brown (10YR 6/3) loamy sand with finely stratified layers of sandy loam 2 to 30 millimeters thick, grayish brown (10YR 5/2) and brown (10YR 5/3) moist, many medium distinct dark

brown (10YR 5/3) moist, many medium distinct dark brown (10YR 4/3) iron mothes; massive soft very triable nonsticky and nonplastic few very fine roots, many very fine interstitial pores, many medium slightly hard and hard "me nodules violently effervescent, very strongly alkaline abrupt wavy

boundary

If C5—29 to 39 inches, light brownish gray (10YR 6-2) learny sand, grayish brown (10YR 5/2) most single grain, loose, nonsticky and nonplastic, few very line roots, many very fine interstitia, pores, very strongly alkaline, clear wavy boundary.

dC6—39 to 64 inches, light brownish gray (10YR 6/2) sand, grayish brown (10YR 5/3) moist, common coarse faint brown (10YR 5/3) for mottes single grain, loose nonsticky and nonprastic, many very fine interstitial pores, moderately arkaline.

The control section dominantly is stratified sand or toamy sand but has minor strate of loamy material including clay loam, silty clay loam, or loam in some pedons. The control section has 0 to 10 percent clay Mottles are at a depth of 6 to 40 inches in most pedons that are not disturbed. Reaction is neutral to very strongly aixaline.

Saralegul Series

The Saralegui series consists of very deep, wedrained, moderately rapidly permeable soils on alluvial fans and lake terraces. These soils formed in a uvium derived mainly from granitic rocks. Slopes are 0 to 15 percent.

Typical pedon of Saralegui loamy sand, 4 to 8 percent slopes, about 1,740 feet north and 1,310 feet west of the southeast corner of sec. 12, T. 11 N., R. 23 E.

A11—0 to 2 inches, brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist, single grain; loose nonsticky and nonplastic few fine roots, many very fine and fine interstital pores, neutral; abrupt wavy boundary

A12—2 to 5 inches grayish brown (10YR 5/2) light loamy sand dark brown (10YR 3/3) moist; weak thin and medium platy structure; slightly hard very frabre nonsticky and nonplastic, common fine roots many very fine and fine interstitial pores, slightly acid, abrupt wavy boundary

Bit—5 to 12 riches, yellowish brown (10YR 5/4) sandy oam, dark yellowish brown (10YR 3/4) morst, weak fine subangular blocky structure, slightly hard, very frable, nonsticky and nonplastic, common fine roots, many line and very line interstitial pores, few thin clay coatings on sand grains, neutral, abrupt wavy

boundary

B21t—12 to 23 riches, yellowish brown (10YR 5:4) heavy sandy pam brown (10YR 4/3) moist, weak medium subangular blocky structure, very hard, very friable, slightly sticky and slightly plastic, few very fine, fine, and medium roots, many line and very fine interstitial pores, many thin clay coatings on sand grains and few clay bridges, neutral, clear smooth boundary.

B22t—23 to 32 inches yellowish brown (10YR 5/4) sandy loam brown (10YR 4/3) moist, massive hard very friable inchesticky and nonplastic, few very fine and fine roots many very fine and fine interstitial pores, many thin clay coatings on sand grains and few clay bridges ineutral, clear smooth boundary.

B3t—32 to 39 inches, brown (10YR 5/3) sandy loam brown (10YR 4/3) moist massive soft, very frable nonsticky and horpiastic lew line roots, many very fine and fine interstitial pores, many thin clay coatings on sand grains and few thin clay bridges neutral clear smooth boundary.

C1—39 to 51 inches brown (10YR 5/3) sand brown (10YR 4/3) moist massive soft, very friable nonsticky and nonplastic, few fine roots, many fine and very fine interstitial potes, neutral: gradual

smooth boundary

C2—51 to 64 inches, pale brown (10YP 6/3) sand brown (10YP 4/3) moist, single grain, loose nonsticky and nonplastic few fine roots, many fine and very fine interstitial pores, neutral

The control section averages 10 to 15 percent clay and 5 to 20 percent rock fragments. Reaction is slightly acid or neutral in the surface layer and it commonly increases to strongly alkaline below the surface layer.

Saralegui Variant

Sararegu: Variant consists of very deep, well drained, moderately slowly permeable soils on take terraces and alluvia fans. These soils formed in wind-worked arrowing over ake sed ment derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Sara egui Variant foamy sand, about 1 000 feet north of the southeast comer of sec. 11, T. 12

N R 23 E

A11 O to 1 inchi pale brown (10YR 6/3) sand, brown (10YR 4/3) moist, single grain loose, nonsticky and nonplastic, many very fine interstitial pores moderately alkaline; abrupt smooth boundary

A12 1 to 4 inches, pale brown (10YR 6/3) learny sand, brown (10YR 4/3) moist, weak thin platy structure, soft, very fnable, nonsticky and nonprastic few very fine roots, many very line interstitia pores, moderately alkaline, clear smooth boundary.

A2—4 to 10 inches, light gray (10YR 7/1) sandy loam, brown (10YR 4/3) moist, massive, slightly hard, very frable nonsticky and nonplastic few very line roots, few very fine interstitial pores, moderately alkaine.

gradual smooth boundary.

B211 -10 to 13 inches, ye owish brown (10YR 5/4) heavy sandy loam, brown (10YR 4/3) moist massive slightly hard, fnable slightly sticky and nonplastic few line roots common very fine interstitial pores common thin clay bridges, strongly alkaline abrupt smooth boundary.

822t—13 to 20 nches, pale brown (10YR 6-3) sandy toam, brown (10YR 4/3) moist, massive slightly hard friable, slightly sticky and nonplastic few very line roots, common very fine interstitlal porce common thin clay bridges and common thin clay films ining porce strongly alkaline abrupt smooth

oundary

(ICt —20 to 28 inches, brown (10YR 5/3) disy loam once brown (2.5Y 4/4) moist, weak medium and fine subangular blocky structure, slightly hard, friable sticky and slightly plastic, few very fine roots, common very fine interstitial pores, many thin disy litms on peds and lining pores, very strongly alkaline; abrupt smooth boundary.

1C2ca—28 to 38 inches, light gray (2.5Y 7/2) silty clay toam light plive brown (2.5Y 5/4) moist; common tine distinct white (10YR 8/1) lime mottles, massiversoft, very fnable slightly sticky and plastic very strongly a kaline crear smooth boundary.

IIC3—38 to 42 inches, pale brown (10YR 6/3) damy sand brown (10YR 4/3) moist massive icose, nonsticky and nonplastic, many very fine interstitial pores, moderately a kaline, crear wavy boundary.

iiiC4—42 to 48 inches, light gray (10YR 6/1) sandy cam, brown (10YR 5/3) moist; white (10YR 6/2) ime laminae imassive, hard, friable, slightly sticky and slightly plastic, moderately alkaline; clear smooth boundary.

I C5—48 to 68 nohes, yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 4/4) moist single grain; loose, nonsticky and nonplastic, many very fine interstitial pores, moderately alkaline.

The thickness of the solum and depth to the unconformable sediment are 18 to 36 inches. A fine gravel pavement commonly is on the surface. Reaction of the A horizon is mildly akialine or moderately alkaline.

The 82t honzon is 8 to 15 percent clay and is moderately alkaline or strongly alkaline. The C horizon is stratified silty clay loam or clay foam in the upper part and foam to sand in the lower part. Reaction of the C honzon is strongly alkaline or very strongly alkaline.

Shoken Series

The Shoken senes consists of very shallow, well drained rapidly permeable soils on hills and mountains. These soils formed in residuum derived from granite. Slopes are 30 to 75 percent.

Typical pedon of Shoken very gravelty coarse sandy toem, 50 to 75 percent slopes, in an area of Shoken-Rock outcrop association, about 2,050 feet north and 1,250 feet east of the southwest corner of sec. 33. T. 8. N. R. 27. E.

A1--0 to 1 inchi grayish brown (10YR 5/2) very grave by coarse sandy loam, dark grayish brown (10YR 4/2) moist, weak fine granular structure, soft, very frable nonsticky and nonplastic common very fine roots many very fine interstitial pores, 40 percent fine pubbles, neutral; abrupt smooth boundary

C1—1 to 5 inches ipale brown (10YR 6/3) very gravelly coarse sandy loam brown (10YR 5/3) moist massive soft very friable nonsticky and nonplastic few fine and many very fine roots, many very fine interstitial pores, 40 percent fine pebbles, neutral abrupt wavy boundary.

Cr—5 to 25 inches, soft weathered granite gradual wavy boundary

R-25 inches hard granite

Thickness of the soil and depth to the paralithic contact are 3 to 10 inches. Depth to the lithic contact is 20 to 40 inches. The profile averages very gravefly coarse sandy loam that is 35 to 50 percent fine pebbies and 2 to 8 percent clay. Roots penetrate the soft weathered bedrock to a depth of several inches in some pedons.

Shree Series

The Shree series consists of very deep weil drained, moderately slowly permeable soits on the upper part of alluvial fans. These soits formed in gravelry alluvium derived from mixed rock sources. Slopes are 4 to 8 percent.

Typical pedon of Shree very gravelly loam, 4 to 8 percent slopes, 350 feet south and 1 900 feet east of the northwest corner of sec. 7, T. 7 N. R. 20 E.

A11—0 to 3 inches, brown (10YR 5/3) very gravely loam, very dark grayish brown (10YR 3/2) moist weak fine grant ar structure; soft, very fnable, nonsticky and nonplastic, many fine and very fine roots, many fine and very fine interstital pores; 40

percent peobles and 5 percent cobbies; neutral abrupt smooth boundary

A12—3 to 10 inches, grayish brown (10YR 5/2) very gravelly heavy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; soft, very fnable slightly sticky and slightly plastic, lew coarse fine, and very fine roots and common medium roots, many very fine and fine interstitial pores. 30 percent peobles and 10 percent cobbies neutral, clear smooth boundary.

B1(—10 to 13 inches, brown (10YR 5/3) very gravelly clay learn, dark brown (10YR 3/3) moist imoderate fine subangular blocky structure; slightly hard fnable sticky and plastic common coarse and tew line roots common fine and very fine interstit at pores and few medium lubular pores, lew thin clay films on peds, 35 percent gravel and 15 percent cobbles, neutral iclear smooth boundary.

B2t—13 to 21 inches, light yellowish brown (10YR 6/4) extremely grave by clay loam, dark brown (10YR 4/3) moist, moderate medium subangular blocky structure, hard, thable, very sticky and very plastic few medium and fine roots, common tine and very fine interstitial pores and few medium lubular pores common thin and moderately thick day films on peds and ining pores, 45 percent pebb as and 15 percent cobbles, neutral clear smooth boundary.

931—21 to 26 inches, pale brown (10YR 6/3) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/3) moist, moderate fine subangular blocky structure elightly hard finable, sticky and plastic, few medium and fine roots, common fine and very fine interstitial pores and few medium tubular pores, few thin clay films on peds and lining pores, 50 percent pebbies and 15 percent cobbles, neutral, clear smooth boundary.

C1—26 to 60 inches very paie brown (10YR 7/4) very gravelly sandy loam, yellowish brown (10YR 5/4) moist, massive; soft, fnable, nonsticky and nonplastic, few medium roots 45 percent pebbles and 15 percent cobbles, mildly alkaline

The mollic epipedon is 10 to 15 inches thick. The solum is 24 to 30 inches thick

The A horizon is slightly acid to mildly alkaline. The Bt horizon is very gravelly or extremely gravelly clay loam or sandy cray loam that averages 27 to 35 percent clay and 40 to 55 percent rock fragments, mostly peobles. Reaction is neutral or mildly alkaline.

Singatse Series

The Singatse series consists of very shallow somewhat excessively drained, moderately permeable sous on this and low mountains. These soils formed in residuum and some colluvium derived from andesite and granite. Slopes are 8 to 75 percent.

Typical peden of Singatse very gravelly foam, 30 to 75 percent slopes in an area of Singatse-Theori association, about 2,100 feet south and 850 feet east of the northwest corner of sec. 32, T. 13 N., R. 25 E.

A1—0 to 2 inches, light brownish gray (2.5Y 6/2) very grave by loam grayish brown (2.5Y 5/2) moist massive, soft. Inable, nonsticky and nonplastic many fine and very fine interstital and vesicular pores. 55 percent peobles, strongly effervescent strongly alkaline abrupt wavy boundary.

C1—2 to 5 inches light gray (2.5Y 7/2) very graverly oam, grayish brown (2.5Y 5/2) moist, massive, soft (riable, nonsticky and nonplastic, common fine and many very fine roots, few fine and many very fine interstitial pores. 55 percent pebbles, strongly effervescent, strongly alkaline, abrupt wavy boundary.

Cr—6 to 12 inches, volcanic saprovte, very hard extremely firm, thin coatings of time and matted roots along cracks, clear vregular boundary.

R -12 nches, hard andes tellew roots in fractures

Depth to the paralithic contact is 4 to 12 inches, and depth to the lithic contact is 10 to 20 inches. The control ection to the paralithic contact averages very gravefly sam or very gravefly sandy soam that is 5 to 15 percent clay and 35 to 60 percent rock fragments, mostly peobles. Reaction is moderately alkaline or strongly alkaline.

Smedley Series

The Smedley series consists of shallow, well drained, slowly permeable soils on alluvial fans. These soils formed in alluvial derived from mixed igneous rocks. Signey are 2 to 30 percent.

Typical pedan of Smedley very gravelly sandy loam, 2 to 4 percent slopes, about 700 leet north and 800 feet west of the southeast corner of sec. 13, T. 6 N., R. 27 E.

A1—0 to 2 inches, right brownish gray (10YA 6/2) very gravely sandy loam, dark grayish brown (10YA 4/2) moist, weak thin piety structure: soft, very finable nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 30 percent peobles, 10 percent cobbles, and 2 percent stones, neutral, abrupt smooth boundary.

B11—2 to 4 inches, pale brown (10YR 6/3) gravely oam, brown (10YR 4/3) moist; moderate fine granular structure, sightly hard, fnable, slightly sticky and sightly plastic, few fine and common very fine roots, few fine and many very fine tubular pores, many clay bridges, 20 percent pebbles, 10 percent cobbles, and 2 percent stones; mildly alkainer abrupt smooth boundary.

B21t—4 to 8 inches, brown (10YR 5/3) gravelty clay dark brown (10YR 4/3) moist, moderate fine

subangular blocky structure; hard, firm, very sticky and very plastic; few medium and coarse pores and many fine and very fine pores, continuous day bridges and clay coatings on peds and lining pores 15 percent pebbles, 10 percent cobbles, and 2 percent stones, mildly a kaline, clear wavy boundary

B221 - 8 to 13 inches, yellowish brown (10YR 5/4) gravelly clay dark ye lowish brown (10YR 4/4) moist strong medium and coarse subangular blocky structure hard, firm, very sticky and very plastic; few medium roots, common fine roots, and many very fine roots, few fine and many very fine pores, continuous clay bridges and common thin and moderately thick clay films on peds and lining pores; 15 percent pebbles, 10 percent cobbles, and 2 percent stones, mildly a kalme, clear wavy boundary.

931ca—13 to 18 inches, pale brown (10YR 6/3) very grave by loam, brown (10YR 4/3) moist livesk medium and coarse subangular blocky structure slightly hard, very finable slightly sticky and slightly plastic, few medium roots, common fine roots, and many very fine roots, few fine and common very fine tubular pores. 25 percent pebbles, 15 percent cobbles, and 2 percent stones, few fine time filaments and soft masses, slightly effervescent moderately alkaline, clear wavy boundary.

C1casim—18 to 43 inches, white (10YR 8/2), strongly cemented dunpan, very hard, violently effervescent strongly alkaine, diffuse wavy boundary

C2—43 to 64 inches light gray (10YR 7/2) extremely gravelly sandy loam, brown (10YR 5/3) moist, massive soft, very fnable nonslicky and honprastic. 50 percent pebbles, 15 percent cobbles and 2 percent stones violently effervescent, strongly alkaline.

Thickness of the solum and depth to the duripan are 14 to 20 inches. Reaction of the solum is neutral to moderately alkaline, commonly decreasing in alkalinity with depth.

The Bt horizon dominantly is grave by or cobbly diay loam or gravelly clay that is 15 to 35 percent rock fragments and 35 to 45 percent clay. Thin strate of gravelly or very gravelly loam are present in some pedons.

The dunpan is hard to extremely hard and has discontinuous indurated laminae in some pedons, in some pedons, in some pedons weakly consolidated Tenlary sandstone or mudstone is below a depth of 40 inches.

Springmeyer Series

The Springmeyer series consists of very deep, well drained, moderately slowly permeable soils on a divide fans. These soils formed in mixed a dylum. Slopes are 0 to 4 percent

Typical pedon of Springmeyer sandy loam, 0 to 4 percent slopes, 1.75 m es northeast of Rickey Mine. 2,500 feet east and 1,500 feet south of projected northwest corner of sec. 10. T. 8 N. R. 24 E.

- A1—0 to 3 inches, grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist, moderate thick and medium platy structure, soft, very friable, nonsticky and nonplastic, few fine and very fine roots, many fine and very fine vesicular pores, 5 percent peobles, neutral: clear smooth boundary.
- A12—3 to 10 inches, grayish brown (10YR 5/2) sandy loam very dark grayish brown (10YR 3/2) moist weak medium and fine subangular blocky structure slightly hard, friable slightly sticky and slightly plastic; common medium and many fine roots common fine lubular pores. 5 percent pebblineutral, clear wavy boundary
- Bit—10 to 17 inches, brown (10YR 5/3) sandy clay loam very dark gray-sh brown (10YR 3/2) moist, moderate coarse and medium subangular blocky structure hard, firm, sticky and plastic many medium, fine and very line roots, common medium and fine tubu ar pores, common moderately thick clay lims on peds and hining pores. 5 percent pebbles, neutral clear wavy boundary
- B2t—17 to 23 inches, brown (10YR 5/3) sandy clay dark brown (10YR 4/3) moist, moderate medium angular blocky structure hard, firm, sticky and plastic, few fine roots, few fine tubular pores, many moderately thick clay films on peds and lining pores, 10 percent pebbles, neutral clear smooth boundary.
- B31—23 to 34 nches, brown (10YR 5/3) sendy clay loam, dark brown (10YR 4/3) moist, massive, hard firm, sticky and plastic, few fine roots, few fine tubular and interstitial pores, common thin clay films bridging mineral grains, 10 percent pebbles neutral gradual smooth boundary.
- C—34 to 60 inches, yellowish brown (10YR 5/4) sandy oam, dark brown (10YR 4/3) moist massive hard, friable slightly sticky and slightly plastic, lew fine roots, few fine interstitial pores; 10 percent pebbles, neutra.

The molic epipedon is 10 to 19 inches thick. Thickness of the solum commonly is 20 to 40 inches, but it is 60 inches or more in some pedons. Reaction of the solum is slightly acid or neutra.

The Bt horizon dominantly is sendy diay loam but includes strata of sandy diay. It averages 25 to 35 percent diay and has 5 to 25 percent rock fragments.

The C honzon is very gravelly sandy ctay loam to loamy sand and has as much as 70 percent rock fragments in some pedons. Reaction is neutral to moderately arkaline.

Stucky Series

The Stucky senes consists of very deep well drained, moderately slowly permeable soils on oid a luvial fans. These soils formed in alluvium derived mainly from granitic rock. Slopes are 2 to 30 percent.

Typical pedon of Stucky extremely cobbly sandy loam. 8 to 15 percent slopes, about 2,150 feet west and 1,550 feet south of the northeast corner of sec. 33, T. 13 N., R. 23 E.

- A11—0 to 2 inches, grayish brown (10YR 5/2) extremely cobbby sandy loam, very dark grayish brown (10YR 3/2) moist, weak fine and medium granu ar structure, soft, very triabilial nonstickly and nonplastic, few fine and very fine roots, many very fine interstitial pores, 30 percent pebbles, 5 percent cobbies, and 5 percent stones neutral abrupt smooth boundary.
- A12—2 to 6 inches light brownish gray (10YR 6/2) extremely cobbly toam dark brown (10YR 3/3) moist, weak fine and medium subangular blocky structure slightly hard very friable, nonstickly and nonplastic many fine and very fine roots many fine and very tine interstitial pores and common fine tubular pores. 25 percent pebbles. 30 percent cobbles, and 5 percent stones neutral abrupt smooth boundary.
- 811—6 to 10 inches ye lowish brown (10YR 5/4) extremely cobbly sandy clay loam, dark yet owish brown (10YR 4/4) moist, weak fine and medium subangular blocky structure, hard finable, slightly stocky and slightly plastic few medium roots and common fine and very fine interstibal pores and common fine tubular pores, many thin clay bridges between sand grains and few clay films lining pores, 30 percent pebbles, 25 percent cobbles, and 5 percent stones, neutral abrupt wavy boundary.
- 82t--10 to 20 inches, ye lowish brown (10YR 5/4) extremely cobbly sandy clay loam, dark ye lowish brown (10YR 4/4) moist; strong fine and medium subangular blocky structure; hard fnable sticky and plastic flew medium, fine, and very fine roots, common fine and many very fine tubular pores continuous clay films on ped faces and lining pores 25 percent pebbles, 25 percent cobbles, and 10 percent stones, neutral, clear wavy boundary
- C1—20 to 35 inches, pale brown (10YR 6/3) vary stony sandy loam, brown (10YR 4/3) moist massive slightly hard, fnable, nonsboky and nonplastic; few fine and very fine roots, few fine and common very fine tubular pores; 20 percent pebb es, 10 percent cobbles, and 15 percent stones mildly alkaline clear wavy boundary.
- B2tb-35 to 44 inches, brown (7 5YR 5/4) very story clay loam, dark brown (7 5YR 4/4) moist, weak

medium and coarse subangular blocky structure very hard, thable sticky and plastic few fine and very fine roots, few fine and common very fine tubular pores, continuous thin clay films on peds and ning pores. 20 percent pebbles 10 percent cobbles, and 15 percent stones, mildly alka clear wavy boundary.

B3tb—44 to 49 noties, yellowish brown (10YR 5/4) extremely story loam, dark yellowish brown (10YR 4/4) moist weak medium and coarse subangular blocky structure, hard, friable slightly sticky and slightly plastic few fine and very line roots few fine and common very tine tubular pores common thin clay films on peds and lining pores. 30 percent pebbles, 20 percent cobbles, and 20 percent stones mildly alkaline clear wavy boundary.

C2ca—49 to 60 inches, light yellowish brown (10YR 6/4) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist, massive hard, triable sightly sticky and slightly plastic, few fine and very fine roots, few fine and many very fine interstitial pores, 40 percent pebbies, 20 percent cobbles, and 10 percent stones slightly effervescent to strongly effervescent moderately alkaline.

The solum is 20 to 30 inches thick

The BI horizon has 50 to 70 percent rock fragments mainly cobbies and slones, and averages 27 to 35 percent clay

The C horizon has 40 to 75 percent rock fragments mainly cobb os and stones. Reaction is neutral to moderately alkaline. A buried BI horizon is common in most perforis.

Surgem Series

The Surgem series consists of moderately deep well drained slowly permeable soils on convex uplands. These soils formed in residuum derived from granodiorite. Slopes are 30 to 50 percent.

Typical pedon of Surgem extremely story sandy loam. In an area of Surgem-Olac-Cagle association, about 1,450 feet north and 500 feet east of the southwest corner of sec. 9, T. 12 N , R. 23 E.

- A11—0 to 1 inch. brown (10YR 5/3) extremely stony sandy loam, dark brown (10YR 3/3) moist, weak med um granular structure soft, very friable nonsticky and nonplastic, many very fine interstita pores; 35 percent pebbles, 25 percent cobbles, and 30 percent stones, slightly acid; abrupt smooth boundary.
- A12—1 to 4 nones, light brownish gray (10YR 6/2) extremely stony sandy loam, brown (10YR 4/3) moist, moderate medium and thin platy structure slightly hard very fnable, nonsticky and nonplastic few medium and many very fine roots; many fine and very fine vesicular pores, 35 percent pebbles

20 percent cobbles, and 20 percent stones, slightly acid: clear smooth boundary

- B1t—4 to 6 inches, brown (10YR 5/3) very gravelly learn dark brown (10YR 3/3) moist, weak fine subangular blocky structure, hard, fnable, sticky and slightly plastic common medium and fine roots and many very fine roots, many fine and very fine tubular pores, 45 percent pebbles and 10 percent cobbles, neutral clear smooth boundary.
- B21t—6 to 10 inches, yellowish brown (10YR 5/4) extremely gravelly day dark yellowish brown (10YR 3/4) moist, strong fine subangular blocky structure very hard firm, very sticky and very plastic, few fine and many very line roots, many very fine tubular pores, 50 percent pebb es and 10 percent cobb es, neutral, clear wavy boundary.

B22t—10 to 22 inches, brown (7.5YR 4/4) extremely gravelly clay brown (7.5YR 4/4) moist, strong fine ular blocky structure very hard, firm very alloxy and very plastic few line and very fine roots, many very fine tubular poresi 60 percent pebbles and 20 percent cobbles, neutral gradual wavy boundary

R—22 inches, fractured granitic bedrock ic ay coalings in tractures.

Thickness of the solum and depth to bedrock are 20 to 30 riches

Reaction of the A horizon is slightly acid or neutral. The B2t horizon dominantly is extremely gravelly sandy clay or clay and averages 35 to 50 percent clay and 50 to 80 percent rock fragments, mostly pubbles and some cobbles and stones. Reaction is slightly as in to midly alkaline.

Tempin Series

The Tenpin series consists of very deep, we'll drained slowly permeable soils on old allow at lans and remnant dissected fans. These soils formed in a union derived mainly from pyroclastic and granibo rocks. Slopes are 4 to 8 percent.

Typical pedon of Tenpin very gravelly loam, in an area of Tenpin-Shree association, about 900 feet south and 400 feet west of the northwest corner of sec. 6 T. 7 N., R. 25 E.

- A11—0 to 1 inch, brown (10YR 5/3) extremely gravelly sandy learn, very dark grayish brown (10YR 3/2) most, massive, soft, very friable, nonsticky and nonplastic many very fine interstitia pores, 70 percent pebbles, 5 percent cobbles, and 5 percent stones; slightly acid abrupt smooth boundary
- A12: 1 to 4 mohes, light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist: weak fine and medium subangular blocky structure: slightly hard, very finable, nonsticky and nonplastic, few fine and many very fine roots, many

very fine and fine vesicular pores, 35 percent pebbles 5 percent cobbles, and 5 percent stones.

neutral abrupt smooth boundary

A3—4 to 7 nches, brown (10YR 5/3) very gravelly loam dark brown (10YR 3/3) moist, weak fine subangular blocky structure; sightly hard, very finable sightly sticky and sightly plastic, few medium roots and many fine and very fine roots, many fine and very fine tubular poreside 40 percent pebbles. 10 percent cobbies and 5 percent stones, neutral abrupt smooth boundary.

B1—7 to 11 inches paie brown (10YR 6/3) very gravelly oam, brown (10YR 4/3) moist, weak coarse subangular blocky structure, hard friable slightly slicky and slightly plastic, few medium roots and common fine and very line roots, many fine and very fine tubular pores 40 percent pebbles, 10 percent cobbles and 5 percent stones neutral abrupt smooth boundary.

B211—11 to 21 inches, brown (7.5YR 5.4) extremely gravetly clay, dark brown (7.5YR 4.4) moist moderate medium and fine angular and subangular blocky structure, very hard firm very sticky and very plastic few fine and common very fine roots common fine and very line tubular pores, few thick clay films and many thin and moderately thick clay films on peds and rining pores, 50 percent pebbles 15 percent cobbles, and 5 percent stones, neutral clear smooth boundary.

B22t—21 to 27 inches, light brown (7.5YR 6/4) extremely cobbily sandy clay, brown (7.5YR 5/4) moist, weak medium and coarse subangular blocky structure, very hard, fnable very sticky and very plastic, few very fine roots few fine and common very fine tubular pores, continuous thin and moderately thick clay films on peds and fining pores 40 percent pebbles, 20 percent cobbles, and 10 percent stones, slightly acid, clear smooth boundary

B3t—27 to 33 inches light yellowish brown (10YR 6/4) extremely cobbly sandy loam, dark yellowish brown (10YR 4/4) moist, massive, hard friable slightly sticky and slightly plastic, few very fine roots, many very fine interstitial pores; common thin clay bridges 40 percent pebbles. 15 percent cobbles, and 15 percent stones, neutral: gradual smooth boundary.

C1—33 to 60 inches pale brown (10YR 6/3) extremely cobbly sandy joam brown (10YR 4/3) moist massive, slightly hard very fnable nonsticky and nonplastic, few very fine roots: few fine and many very fine interstitial pores: 40 percent pebbles, 20 percent cobbles, and 15 percent stones: neutral

Thickness of the solum is 30 to 40 inches. Reaction is slightly acid or neutral throughout the profile.

The Bit horizon dominantly is extremely gravelly clay or extremely cobbity sandy clay that is 60 to 75 percent rock tragments. It includes strata of loam or sandy loam.

that is 50 to 75 percent rock fragments. The horizon averages 35 to 45 percent clay.

The C horizon is extremely cobbly sandy oam or extremely cobbly loam that is 60 to 75 percent rock fragments

Theon Series

The Theor series consists of shallow and very shallow well-drained moderately slowly permeable so son footh-its and tow mountains. These soils formed in residuum derived mainly from andesite and thyolite. Slopes are 8 to 75 percent.

Typical pedon of Theon very graveily loam, 30 to 50 percent slopes, in an area of Theon-Olac association about 1 385 feet north and 1,215 feet west of the southeast corner of sec. 13 T. 13 N. R. 24 E.

- A1—0 to 2 inches, pale brown (10YR 6/3) very gravelly cam, dark yellow ship brown (10YR 3/4) moist, weak medium granular structure, soft, very friable, nonstickly and nonpiastic flew the and very find roots, many fine and very the interstitial pores, 50 percent pebbles, 5 percent cobbles, and 1 percent stones, moderately alkaline labrupt smooth boundary.
- B11—2 to 6 inches, brown (7.5YR 4/4) extremely gravelry toam dark brown (7.5YR 3/4) most weak line subangular blocky structure, slightly hard, very triable slightly sticky and slightly plastic common medium roots and many line and very fine roots, many fine and very line interstitial pores, many very thin clay films on peds and uning pores, 60 percent pebbles, 5 percent cobbies, and 1 percent stones moderately alkaline, abrupt smooth boundary.
- 92t—6 to 11 inches, reddish brown (5YR 4/4) very gravelly diay loam, reddish brown (5YR 4/4) moist moderate fine subangular blocky structure, hard firm sticky and plastic common medium fine, and very fine roots, common fine and very fine lubular pores, many thin and moderately thick diay films on peds and lining pores. 50 percent pebbles, 1 percent cobbies, and 1 percent stones, moderately alkaline, abrupt wavy boundary.
- Cr—13 to 16 inches, weathered andesite root mats and clay coatings in fractures, gradual wavy boundary P—16 inches, unweathered andesite

Thickness of the solum and depth to the parafithic contact are 8 to 14 inches. Unweathered bedrock is at a depth of 10 to 20 inches.

Reaction of the Altiprizon is neutral to moderately aixa nei

The 8t horizon averages day loam, sandy day loam, or loam that is 35 to 60 percent rock fragments, mostly pebbles, and 25 to 35 percent day. Reaction is neutral to strongly alkaine.

The weathered bedrock commonly has discontinuous coatings of time and silica along weak fracture planes.

Ticino Series

The Tic no series consists of moderately deep, we advaned, moderately permeable soils on fillisides and mountainsides. These soils formed in residuum derived mainly from rhyolite. Slopes are 30 to 50 percent.

Typical pedon of Ticino extremely grave by sandy loam, in an area of Glean Ticino-Hartig association, about 1,600 feet south and 2,300 feet east of the northwest corner of sec. 35. T. 8 N., R. 24 E.

A11—0 to 1 inch, dark grayish brown (10YR 4/2) extremely gravely sandy loam, very dark brown (10YR 2/2) moist, weak very fine granular structure loose, nonsticky and nonplastic many very fine interstitial pores, 70 percent peobles and 2 percent cobbies neutral, abrupt smooth boundary

A12-1 to 5 inches very dark gray sh brown (10YR 3-2) very gravely sandy loam, very dark brown (10YR 2/2) moist imoderate very line granular structure soft very friable inonsticky and nonplastic many very line roots, many very fine interstital pores. 55 porcent pebbles and 5 percent cobbles, neutral.

abrupt smooth boundary.

A13—5 to 12 inches very dark grayish brown (10YR 3/2) extremely gravelly sandy loam, very dark brown (10YR 2/2) moist, moderate fine granular structure soft very finable nonsticky and nonplastic, few medium roots, common fine roots, and many very fine roots, many very fine interstitial pores and few fine tubular pores, 65 percent pebbles, neutral; clear smooth boundary.

8211—12 to 19 riches, brown (10YR 4/3) grave ly loam, dark brown (10YR 3/3) moist moderate medium and fine subangular blocky structure; hard fhable sticky and slightly plastic few medium and coarse roots and common fine and very fine roots, many fine and very fine interstitial pores and lew fine tubular pores, many thin day bridges 20 percent pebbles, neutral gradual smooth boundary.

B221—19 to 28 inches, light yellowish brown (10YR 6/4) gravelly dam, yellowish brown (10YR 5/4) moist hard very fnable, sightly stoky and nonplastic, few medium, fine, and very fine roots: many very fine interstitial pores, 15 percent pebbles, common thin clay bridges, neutral, gradual wavy boundary

Cr -28 to 40 inches highly weathered rhyolite; root mats

in fractures.

Thickness of the solum and depth to a paralithic contact are 20 to 40 inches. Reaction is slightly acid or neutral.

The 8t horizon is sandy clay loam, clay loam, or loam that is 15 to 35 percent rock fragments, mostly pebbles, and averages 18 to 35 percent clay.

Tocan Series

The Tocan series consists of very deep well drained, moderately slowly permeable soils on fans and lake terraces. They formed in alluvium and lacustine material derived from mixed rock sources. Slopes are 0 to 8 percent.

Typical pedon of Tocan sandy loam. 0 to 2 percent slopes, about 600 feet south and 750 feet west of the northeast corner of sec. 33. T. 12 N. R. 25 E.

- A1 -0 to 6 inches, pale brown (10YR 6/3) sandy loam brown (10YR 4/3) moist, weak fine granular structure soft, very finable, nonsticky and nonplastic, many tine and very fine roots, many very fine interstitial pores. 15 percent peobles, mildly alkaling abrupt smooth boundary.
- 81—6 to 10 inches, very pale brown (10YR 7/3) toam brown (10YR 5/3) moist, weak coarse subangular blocky structure slightly hard friable slightly slicky and slightly plastic common coarse and medium roots and many fine and very tine toots, taw tine and many very tine tubular pores. 10 percent pebbles, midly alka he, abrupt wavy boundary.
- 821 10 to 15 inches, ye owish brown (10YR 5/4) gravelly sandy dray loam, dark ye lowish brown (10YR 4/4) moist, moderate medium and fine subangular blocky structure, hard, firm, very sticky and plastic, common coarse and medium roots and many fine and very fine roots, many fine and very fine tubular pores, common thin clay films on peds and fining pores, continuous very than dray bridges 20 percent pebbies, moderately a kaline; clear wavy boundary.
- C1si—15 to 32 inches, pale brown (10YR 6/3) gravelly sandy loam brown (10YR 4/3) moist, weak coarse subangular blocky structure; 30 percent very hard sinca-cemented nodules slightly hard very friable nonsticky and nonplastic; few coarse and medium roots, common line roots, and many very fine roots many fine and very fine tubular pores; 30 percent pebbles, strongly alkaline, clear wavy boundary.
- 1C2—32 to 44 inches light brownish gray (10YR 6/2) very gravelly loamy coarse sand, very dark grayish brown (10YR 3/2) moist, single grain, loose nonsticky and nonplastic, few medium roots and common fine and very fine roots: many fine and very fine interstitia, pores, 60 percent pebbles, lime coatings on undersides of pebbles are strongly effervescent; moderately alkaline; abrupt broken boundary.
- II C3sica: 44 to 51 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist, massive hard, firm nonsticky and nonplastic brittle; few fine and very fine roots common very fine tubular pores weak continuous silica cementation; 10 percent

pebbies, violently effervescent, strongly a kaline

abrupt wavy boundary.

VC4---51 to 60 inches, light brownish gray (10YR 6/2) very gravelly sand very dark grayish brown (10YR) 372) moist; single grain; loose, nonsticky and nonplastic few fine and very fine roots, many fine and very fine interstit all pores, 40 percent pebbles. moderately a karne

Thickness of the solum and depth to the Csi horizon. are 12 to 18 nones. Depth to the sandy skeletal I/C hor zon is 24 to 36 inches. Reaction is neutral to mirdly a kaline in the A horizon, neutral to moderately alkaline in the B2t horizon, and moderately to strongly a kaline in the C horizon

The B2t horizon contains as much as 20 percent pebbles and averages 20 to 28 percent clay

Toulon Series

The Toulor series consists of very deep, excessively drained, moderately rapidly permeable soils on bars and shoreline terraces. These soils formed in water worked. grave, and sand derived from mixed rock sources Slopes are 0 to 4 percent

Typical pedon of Toulon gravely loam, 0 to 4 percent alopes, about 3 140 feet east and 510 feet south of the northwest corner of sec. 24, T. 17 N. R. 24 E.

A1-0 to 5 inches, light brownish gray (2.5Y 6/2). gravelly barn, dark gray-sh brown (2.5Y 4/2) moist strong very thick platy structure, slightly hard, very friable, slightly sticky and slightly plastic many very fine, fine and medium vesicular pores few very fine ropis, 20 percent peobles, violently effervescent. strongly alkaline, abrupt smooth boundary

B2-5 to 13 inches, pale yellow (2.5Y 7/4) very gravely cam, give brown (2.5Y 4/4) moist, common fine and medium strong brown (7.5YR 5/8) and yellowish red (5YR 5/8) relict iron oxide mottles. massive: slightly hard, friable, slightly sticky and slightly plastic, many very fine interstitial and tubular pores, 50 percent peobles, few thin time coatings on the underside of peobles, strongly effervescent. moderately arkaline, abrupt smooth boundary

C1ca-13 to 60 inches, ight gray (N 7/0) and pinkish white (7 5YR 8/2) extremely gravely coarse sand. very dark gray (N 3/0) and pinkish white (7.5YR) 8/2) moist, 60 percent pebbies and 20 percent cobbies me coatings on underside of pebbies and cobbies, violently effervescent; moderately alkaline

Thickness of the solum is 13 to 20 inches. Reaction is moderately alkaline or strongly alkaline. Tufa fragments are on the surface or within the profile in some pedons

The B2 horizon has 40 to 60 percent rock fragments mostly peobles, and 12 to 15 percent clay

The C horizon is stratified grave ly coarse sand to extremely cobbiy coarse sand it includes 45 to 60 percent pebbles and 15 to 30 percent cobbles.

Trid Series

The Trid series consists of moderately deep well drained imoderately slowly permeable soils on mountainsides. These so is formed in residuum denved. from graphic rock with some influence of colluvium Slopes are 4 to 50 percent

Typical pedon of Trid very stony fine sandy loam, 30 to 50 percent slopes, in an area of Trid Roloc-Drift association, about 1 100 feet west and 1,650 feet north. of the southeast corner of sec. 12, T. 11 N. R. 22 E.

- A1 -0 to 4 inches, grayish brown (10YFI 5/2) very stony fine sandy loam, very dark gray shibrown (10YR) 372) moist, weak medium subangular blocky structure, slightly hard, very friable, nonsticky and nonplastic few fine and common very fine interstitati pores. 25 percent pebbles, 15 percent cobbles, and 15 percent stones, slightly acid, clear smooth boundary
- B21t-4 to 9 inches, brown (10YR 5/3) extremely gravelly sandy clay loam, dark brown (10YR 3-3) moist, strong medium and fine angular blocky structure, hard, firm, sticky and plastic, common medium and fine roots and many very line roots common fine and many very fine tubular pores. many that clay firms ining pores and or ped faces. 40 percent fine pebbles and 20 percent cobbies, neutral crear wavy boundary
- B22t-9 to 13 inches, dark yellowish brown (10YR 474). very gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist, strong medium angular blocky structure, hard, firm, sticky and plastic, few medium and fine roots and common very fine roots, few fine and common very fine tubular pores, continuous thin clay films on peds, 40 percent fine pebbles and 15 percent cobbles, neutral, clear wavy boundary
- 323t-13 to 23 inches; dark ye owish brown (10YR 4-4) extremely graveily sandy day toam, dark yellowish brown (10YR 4/4) moist, strong medium angular blocky structure: very hard, firm, very sticky and very prastic; few medium and fine roots and many very fine roots, few fine and common very fine tubular. pores, continuous thin clay films on peds: 45 percent pebbies and 15 percent cobbles, neutral. gradual wavy boundary
- Ct—23 inches, soft, weathered grantic bedrock, day. coatings along fracture planes

The moric epipedon is 8 to 12 nches thick. Thickness of the solum and depth to weathered bedrock are 20 to 40 mohes

The Bt horizon is sandy clay loam or clay loam that is 55 to 70 percent rock fragments, mostly peobles, and 25 to 30 percent clay

Ultra Series

The Ultra series consists of very deep, well drained very slowly permeable soils on lake plains. These soils formed in acustrine sed ment derived from mixed rock sources and are influenced by a thin layer of alluvium Signes are 0 to 2 percent.

Typical pedon of U-tra grave ly fine sandy loam, about 400 feet northwest of Lahonian well 1,800 feet south of the projected northwest corner of sec. 12, T. 16 N. R. 25 E.

A1—0 to 2 inches, light gray (10YR 7/1) gravelly fine indy loam, grayish brown (10YR 7/2) moist moderate thick platy structure, slightly hard, very friable, nonsticky and nonplastic, many fine and very line vesicular pores, 20 percent pebblos, mildly glkaline, abrupt smooth boundary.

B2t—2 to 11 inches, light brown (7.5YR 6/4) clay, brown (7.5YR 4/4) moist imoderate line prismatic structure hard, firm, very sticky and very piastic, many very tine and few fine roots many fine and very fine lubular pores, continuous moderately thick clay films on peds, few thin violently effervescent time veins in the lower 3 inches, moderately aixaline idear smooth boundary.

C1—11 to 36 inches, paie brown (10YR 5/3) silty clay brown (10YR 5/3) moist, massive hard, firm, sticky and plastic, few very fine tubular pores, neutral clear wavy boundary.

C2cs—36 to 45 inches light brownish gray (2.5Y 6/2) strat fied silty clay loam and silty clay, grayish brown (2.5Y 5/2) moist: massive; hard, firm, sticky and plastic, very few very fine tubular pores, many white (10YR 8/1) gypsum filaments and soft masses neutral: gradual wavy boundary

C3-45 to 60 inches, light gray (2 5Y 7/2) sity clay grayish brown (2 5Y 5/2) moist, common fine reddiships ow react iron mottles, massive; very hard, very firm, sticky and very plastic, few fine and very fine tubular pores, neutral.

The solum is 7 to 13 inches thick. Reaction is neutrato strongly alkaline. The control section is clay, sifty clay, or sity clay loam that is 35 to 50 percent clay. Reaction is neutral to strongly alkaline.

Structure of the B2t honzon dominantly is columnar or prismatic, parting to angular blocky in some pedons. The sodium adsorption ratio is 15 to 60. Reaction commonly

is buffered by neutral saits or gypsum

The C horizon is clay or sifty clay with thin strata of sitty day loam or sit loam. Salt and gypsum crystals, we as and masses commonly are in the C horizon.

Uripnes Series

The Unpries series consists of very shallow, we drained, moderately rapidly permeable soils on mountain ridges and side slopes. These soils formed in residuum and local collusion derived from granitic rocks. Slopes are 30 to 50 percent.

Typical pedon of Unpnes very graveily sandy loam in an area of Unpnes-Ch 1-Rock outcrop association, about 2 200 feet south and 650 feet east of the northwest.

corner of sec. 6 T 12 N R 25 E

A11 O to 2 inches grayish brown (10YR 5-2) very gravelly sandy loam, very dark grayish brown (10YR 3-2) moist massive, soft very frable, nonsticky and nonplastic about 45 percent peobles, many line and very fine interstitial pores, noneffervescent, neutral about smooth boundary.

A12—2 to 5 inches brown (10YR 5/3) very gravely sandy loam dark brown (10YR 3/3) moist, massive soft very fnable, nonslicky and nonplastic 40 percent pubbles, few tine and many very tine roots, many very tine interstitial pores, neutral clear

smooth boundary

C1—5 to 9 inches, brown (10YR 5/3) very grave y sandy loam, dark brown (10YR 3/3) moist massive soft, very frable nonstickly and nonplastic, 60 percent peobles, common medium roots few I ne roots, and many very fine roots, many very I ne interstitial pores, noneffervescent matrix and strongly effervescent coatings on peobles; mid y alkaline, abrupt wavy boundary.

Cr-9 to 30 inches, weathered gran le gradua wavy boundary

R-30 nches, hard grante

Depth to the paralithic contact is 3 to 14 inches. Depth to the lithic contact is 20 to 40 inches. The control section from the surface to the paralithic contact is very gravelly sandy loam or very gravelly coarse sandy oam that is 5 to 10 percent cray and 35 to 60 percent rock fragments, mostly line grave. Reaction is neutral or mildly alkaline.

Veta Series

The Veta senes consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans and stream terraces. These soils formed in gravelly alluvium derived from mixed rock sources. Slopes are 2 to 15 percent.

Typical pedon of Veta very gravelly sandy loam. 2 to 8 percent stopes, about 900 feet north of benchmark 4644. 2 450 feet north and 1,150 feet west of the southeast corner of sec. 9, T. 12 N. R. 23 E.

A1—0 to 5 inches, light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2)

moist, massive slightly hard, very finable, nonsticky and nonplastic, few medium and fine roots and many very fine roots, many fine and very fine interstital pores, 45 percent pebbles and 15 percent cobbles; neutral clear smooth boundary.

B2—6 to 18 inches, pale brown (10YR 6/3) extremely grave ly loam, brown (10YR 4/3) moist, massive slightly hard, very finable, nonstickly and nonplastic few medium roots and common fine and very fine roots, many fine and very fine interstitial pores, 50 percent pebbles and 20 percent cobbles, neutral

clear smooth boundary

C1—18 to 38 inches; light brownish gray (10YR 6/2) extremely gravelly coarse sandy loam, dark grayish brown (10YR 4/2) moist massive, slightly hard, very friable monsticky and nonplastic, few medium roots and common fine and very fine roots, many fine and very fine interstital pores 50 percent pebbles and 10 percent cobbles, neutral, gradual smooth boundary.

C2ca—38 to 60 inches, light gray (10YR 7/2) very gravely sandy loam, grayish brown (10YR 5/2) moist, massive, slightly hard, very fnable, nonsticky and nonplastic; few medium and fine roots and common very fine roots, many fine and very fine interstitie pores. 35 percent pebbles and 10 percent cobbles, coatings of line on undersides of pebbles and cobbles innellervescent matrix neutra.

Thickness of the solum is 12 to 20 inches. The profile a noneffervescent to a depth of 28 to 40 inches, and it is slightly effervescent to strongly effervescent or has me-coated rock fragments below. The control section averages very gravelly or extremely gravelly loam, sandy loam, or coarse sandy loam. It has 35 to 75 percent rock fragments, mostly pebbles, and 5 to 15 percent clay. Reaction is neutral to moderately alkaline, commonly increasing in a kalinity with depth.

Vylach Series

The Vylach series consists of shallow, well drained, moderately slowly permeable soils on terraces. These soils formed in alluvium derived from basic igneous rocks over residuum derived from soft. Tertiary sed mentary rocks. Slopes are 2 to 8 percent.

Typical pedon of Vylach gravelly sandy loam, in an area of Vylach-Weena association, about 650 feet south and 2 000 feet west of the northeast corner of sec 31 T. 18 N. P. 24 E.

A1—0 to 2 inches, light gray (10YR 7/1) gravely sandy oam dark grayish brown (10YR 4/2) moist, moderate medium platy structure: soft, very fnable nonsticky and nonplastic, many fine vesicular pores, 30 percent pebbles, neutral; abrupt smooth boundary B1—2 to 5 mches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist, strong fine granular structure; soft, very fnable, slightly sticky and slightly plastic, few fine and very fine roots, many fine interstitial pores. 10 percent pebbles, neutral, clear wavy boundary.

B2t—5 to 12 inches, brown (10YR 5/3) sandy day loam dark brown (10YR 4/3) moist, moderate medium and fine subangular blocky structure hard, firm, very sticky and plastic, few medium and fine roots and common very fine roots, many fine and very fine tubular pores, few thin day films on peds, less than 10 percent pebbles, neutral; abrupt wavy boundary

C1sim—12 to 17 inches, light yellowish brown (10YR 6/4) strongly silica-cemented duripan, dark brown (10YR 4/3) moist, massive, very hard very firm, brittle few medium. The and very fine roots common fine and very fine interstitial pores. 60 percent fine pebbles, moderately a kaline, abrupt wavy boundary.

C2sicam—17 to 27 inches, light brownish gray (10YR 6/2) alternating layers of weakly cemented and strongly cemented very gravely loamy sand, dark brown (10YR 3/3) moist, massive, very hard very tirm, bottle, few very fine roots, many line and very fine interstital pores. 70 percent fine pebbies, thin discontinuous since laminae, slightly effervescent in spots, strongly alkaline, abrupt smooth boundary.

Cr—27 inches, strata of soft sandstone and siltstone.

Thickness of the solum and depth to the dunpan are 9 to 17 inches. Depth to the paralithic contact is 20 to 30 inches. Reaction is neutral to strongly a kaline.

The B2t honzon is sandy clay loam or clay loam and averages 20 to 35 percent clay and less than 15 percent peobles.

The dunpan has thin discontinuous silica laminae in some parts.

The bedrock is soft sandstone, siltstone, or diatomite

Wabuska Series

The Wabuska series consists of very deep, somewhat poorly drained, moderately permeable soils on a livia flats. These soils formed in allievial material derived from mixed rock sources. Slopes are 0 to 2 percent

Typical pedon of Wabuska loam, strongly saline alkali about 1,300 feet east and 50 feet south of the center of sec. 12, T. 13 N. R. 25 E.

A11—0 to 3 inches, light gray (10YR 7/2) loam, brown (10YR 5/3) moist, moderate thin platy structure slightly hard, very fnable, slightly stocky and slightly plastic; many very fine vesicular pores, slightly effervescent, strongly alkaline, abrupt smooth boundary.

- A12—3 to 9 nches, pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist, weak medium subangular brocky structure, hard, thable, slightly sticky and plastic common fine and very fine roots and saligrass rhizomes, many very fine tubular pores, strongly effervescent, very strongly a kaline, clear smooth boundary.
- C1—9 to 15 inches, very pale brown (10YR 7/3) very fine sandy toam brown (10YR 4/3) moist; common medium faint yellowish brown (10YR 5/4) iron mottles, massive, slightly hard, very fnable nonsticky and horiplastic, common fine and very fine toots common very fine tubular pores, slightly effervescent, very strongly alkaline, clear wavy boundary.
- C2ca—15 to 25 inches, pale brown (10YR 6/3) silt loam, brown (10YR 4/3) molst common line distinct dark brown (10YR 3/3) iron mottles, massive, slightly hard very friable, nonsticky and nonplastic common fine and very fine roots common very fine tubular pores, 10 percent irregularly shaped time nodules strongly effervescent, very strongly alkaline, abrupt smooth boundary.
- A15—25 to 29 inches, grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist many medium faint dark brown (10YR 3/3) iron mottles, massive is ightly hard, very finable nonsticky and honplastic, few fine and very fine roots common very fine tubular pores, strongly alkaline, abrupt smooth boundary.
- C3—29 to 34 inches, light brownish gray (10YR 6/2) sandy loam dark grayish brown (10YR 4/2) moist common fine distinct brown (10YR 4/3) iron mottles massive slightly hard, very finable, honsticky and nonplastic; few line and very fine roots, few very fine tubular poresistrongly alkaline, abrupt smooth boundary.
- C4—34 to 39 inches, ight brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist many medium faint dark brown (10YR 4/3) iron mottles single grain, loose inonsticky and nonplastic, few very fine roots, many fine and very fine interstitial pores, moderately a kaline, abrupt smooth boundary
- IIC5—39 to 60 inches, very pale brown (10YR 7/3) stratified loam, silt loam, and very line sandy toam, brown (10YR 5/3) moist; common fine and medium distinct strong brown (7 5YR 4/2) when moist, massive, slightly hard very finable nonsticky and nonplastic, few fine roots, few very line tubular pores, strongly effervescent in spots, moderately arkaline.

The control section averages 10 to 18 percent day and less than 5 percent peobles. Reaction is strongly alkaline in the upper 20 inches, but the alkalinity commonly decreases with depth. The

sodium adsorption ratio commonly is more than 30 in the upper 20 inches but decreases below this depth

The C horizon is stratified foam to sand but dominantly is fine sandy loam. It has mothes that are faint to prominent

Wedertz Series

The Wedertz series consists of very deep, we drained, moderately slowly permeable so is on old ake terraces. These so is formed in a luvium overlying facustione sediment derived mainly from granitic rocks. Slopes are 0 to 15 percent.

Typical pedon of Wedertz coarse sandy loam, in an area of Wedertz Wellington coarse sandy loams 4 to 8 percent slopes, about 100 feet south and 100 feet west of the center of sec. 21 T. 11 N. R. 24 E.

- A1—0 to 3 inches brown (10YR 5/3) loamy coarse sand, dark brown (10YR 3/3) moist, single grain, loose, nonsticky and nonplastic many very fine interstitial pores, slightly acid, abrupt smooth boundary.
- A2—3 to 5 inches light gray (10YR 7/1) sandy loam dark brown (10YR 4/3) moist, weak medium and thick platy structure soft, very friable, nonsticky and nonplastic, common medium and few fine and very fine vesicular pores ineutral abrupt smooth boundary.
- B1—5 to 9 inches, light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 4/3) moist, massive sightly hard very friable, nonsticky and nonplastic lew medium, fine and very fine roots, few very line lubular pores and common very fine interstitial pores, neutral, clear smooth boundary.
- 82t—9 to 16 inches, brown (10YR 5/3) sandy day loam dark yellowish brown (10YR 4/4) moist, massive hard fnable sticky and plastic common medium and very line and few fine interstitial pores many thin day films in pores and many thin day bridges, neutral, clear smooth boundary.
- B3t—16 to 28 inches, brown (10YA 5/3) sandy day toam, dark yellowish brown (10YA 4/4) moist, massive; slightly hard, fnable sticky and slightly plastic few very fine roots many very fine interstitial pores and common very fine tubular pores, common thin clay bridges, neutral abrupt smooth boundary
- C1s—28 to 33 inches, very pale brown (10YR 7/3) sandy loam, dark brown (10YR 4/3) moist, massive hard, fnable, nonsticky and slightly plastic; few very fine roots; many very fine interstitial pores; many thin and few moderately thick silica bridges, neutral; abrupt smooth boundary.
- 1 C2sica—33 to 60 inches, vanegated light gray (10YR 7/2) and white (10YR 8/2) loam, dark ye lowish brown (10YR 4/4) and brown (10YR 5/3) moist, massive, very hard, firm, brittle few very fine roots.

few very fine interstitial pores; continuous weak silica cementation: strongly effervescent moderately alkahne.

Thickness of the solum and depth to the weakly comented horizon are 20 to 35 inches. Reaction is sightly acid or neutra, in the solum and is neutral to strongly alkaline in the C horizon.

The BI horizon is sandy clay loam or clay loam that is 20 to 30 percent day and less than 5 percent rock

fragments

The C horizon is loam or sandy loam and averages 10 to 18 percent clay and less than 5 percent rock. fragments

Wedlar Series

The Wedlar series consists of very deep, well-drained s bw y permeable so s on old alluvial fans in sightly concave areas. These so is formed in alluvium derived from granite rock. Slopes are 2 to 4 percent.

Typical pedon of Wedlar loamy sand in an area of Weitsed Wodlar association, about 1,500 feet west and 1.400 leet north of the southeast corner of sec. 35, T. 7.

N B 27 E

A11-0 to 4 inches grayish brown (10YR 5/2) loamy sand dark brown (10YR 3/3) moist, single grain. oose nonsticky and nonplastic, few very fine roots. many vary fine interstitial pores, 5 percent pebbles neutral abrupt smooth boundary

A12-4 to 6 inches fight gray (10YR 7/2) sandy loam dark grayish brown (10YR 4/2) moist, massive slightly hard, very frable inonsticky and slightly plastic few medium roots and common fine and very fine roots, many line and very fine vesicular pores. 2 percent pebbles; neutral, abrupt smooth

boundary

B11t—6 to 9 inches ght brownish gray (10YR 6/2) loam brown (10YR 4/3) moist, weak coarse subangular blocky structure, slightly hard, very Inable slightly sticky and slightly plastic, few medium roots and common fine and very fine roots. few fine and many very fine pores. 5 percent pebbles, many very thin clay bridges, neutral; clear smooth boundary

B12t-9 to 14 inches, pale brown (10YP 6/3) loam. brown (10YR 4/3) moist, weak medium and coarse subangular blocky structure, hard, very fnable sightly sticky and slightly plastic, few medium and fine roots and common very fine roots, few fine and many very fine tubular pores, combinuous thin clay bridges. 5 percent peobles, neutral; clear smooth boundary

B21t-14 to 19 inches, yellowish brown (10YR 5/4). sandy clay loam, dark yellowish brown (10YR 474). moist, moderate medium and fine subangular blocky structure; hard, fnable, sticky and plastic few

medium and fine roots and common very fine roots. few fine and many very fine tubular pores, continuous thin clay bridges, 5 percent pebbles: strongly alkaline; clear wavy boundary

B221 19 to 29 inches, yellowish brown (10YR 5/4) sandy clay dark yellowish brown (10YR 4/4) moist moderate medium and fine subanquiar blocky. structure very hard firm very sticky and very plastic, few very fine roots, few tine and common very line lubular pores, continuous thin clay lilms on peds and uning pores 10 percent peobles, neutral clear wavy boundary.

831 -29 to 37 inches light ye owish brown (10YR 6/4). sandy clay loam, dark yellowish brown (10YR 4/4). moist weak coarse subangular blocky structure, very hard firm, sticky and plastic, few very tine roots, few fine and common very fine tubular pores. common thin and few moderately thick clay films on peds and ining pores, 10 percent pebbles, neutral clear wavy boundary.

C1si-37 to 60 inches ipaie brown (10YR 6/3) gravely. sandy toam, dark ye lowish brown (10YR 4/4) moist massive hard, very fnable, sightly sticky and slightly plastic few very line roots few line and common. very fine tubular pores. 20 percent weak durinodes 15 percent pebbles and 5 percent cobbles ineutral

Thickness of the solum and depth to the Csi horizon. are 25 to 40 inches

Reaction of the A horizon is sightly acid or neutral The 91 horizon averages 27 to 35 percent clay Reaction is neutral or mildly alkaline. The B2t hor zon is sandy clay loam or sandy clay and averages 30 to 40. percent clay

The Cs. honzon contains 20 to 75 percent durinodes. in a fnable matrix or is discort hubusty weakly silicacemented. The C horizon is gravelly sandy loam or gravelly loamy sand and has a reaction that is neutral to moderately alkaline

Weena Series

The Weena senes consists of very shallow, welldrained, moderately permeable soils on side slopes of dissected Terbary lakebeds. These soils formed in residuum derived from late Tertiary sandstone and sitistone Slopes are 15 to 50 percent

Typical pedon of Weena silt loam in an area of Weena Maloais association, about 1,200 feet south and 2.250 feet east of the northwest comer of sec. 19 T 11 N. R 25 E

A1 -0 to 2 inches, grayish brown (2.5Y 5/2) silt loam. dark grayish brown (2.5Y 4/2) moist massive, soft, fnable, sticky and plastic, many very fine interstitia pores: 10 percent pebbles and 2 percent cobbles: mildly alkaline abrupt smooth boundary

- C1 2 to 7 inches, light brownish gray (2.5Y 6/2) foam, dark grayish brown (2.5Y 4/2) moist, massive, soft, friable, sticky and plastic, common fine and many very fine roots, few fine and many very fine interstitial pores. 70 percent pebble-sized pieces of soft weathered Tertiary bedrock that crushes easily by hand ineutral, clear wavy boundary.
- C2r 7 to 17 nohes, weathered, highly fractured sandstone and sitistone many gypsum veins and pockets, abrupt smooth boundary
- R—17 inches, sightly fractured Terbary sitistone few root mats along fracture planes in the upper 12 nones

Depth to the paral thic contact is 4 to 14 inches. The control section contains 35 to 90 percent soft rock fragments and less than 15 percent hard rock fragments. It is 18 to 27 percent clay. Reaction is neutral to strongly alkaline. The profile is noneffervescent in some parts.

Wellington Series

The Weitington series consists of shailow, we drained moderately slowly permeable soils on old high ake terraces. These soils formed in all uvium and acustrine material derived from mixed rock sources. Since are 0 to 15 percent.

Typical pedon of Weilington coarse sandy loam, in an area of Wedertz-Weilington coarse sandy loams, 4 to 8 percent slopes about 600 feet south of the center of sec. 21 T. 11 N., R. 24 E.

- A1—0 to 2 inches grayish brown (10YR 5/2) learny coarse sand, dark brown (10YR 3/3) moist massive soft, very friable, nonsticky and nonpiastic, many very fine roots, many fine and very fine interstial pores, neutral, abrupt smooth boundary
- A2-2 to 4 inches, light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist gray (10YR 5/1) organic stains massive; slightly hard, very fnable slightly sticky and slightly prastic few medium fine, and very fine vesicular pores, slightly acid: clear smooth boundary
- B2t—4 to 9 inches brown (10YR 5/3) sandy clay foam brown (10YR 4/3) moist: moderate medium subangular blocky structure; hard, firm, very sticky and very plastic, common medium and fine roots and many very fine roots; few medium and fine and many very fine tubular pores, common thin clay films hing pores and many pressure cutans, slightly acid clear smooth boundary.
- B3tsi—9 to 15 inches: pale brown (10YR 6/3) sandy clay oam, brown (10YR 5/3) moist, weak coarse subangular blocky structure, hard, firm, shoky and prastic few fine and very fine roots, common fine and many very fine tubular pores, 30 percent very firm durinodes, common thin clay films on peds and

- many thin clay films lining pores, slightly acid; abrupt wavy boundary
- IIC1sicari— 15 to 26 inches, gray (10YR 6/1) indurated silical and lime-cemented dunpan with light gray (10YR 7/1) coatings of lime, dark grayish brown (10YR 4/2) moist, extremely hard extremely firm few fine roots, common very fine tubular pores strongly effervescent, strongly alkaline, clear wavy boundary.
- IC2sica—26 to 39 inches light gray (10YR 7/1), discontinuous, very thin indurated silica-cemented laminae stratified with light gray (10YR 7/2) weakly silical and lime-cemented very fine sandy loam, grayish brown (10YR 5/2) moist, massive, hard firm nonsticky and nonplastic few very fine roots, common very fine tubular pores, strongly effervescent, strongly alkaline, clear smooth boundary.
- IC3sica: 39 to 48 inches variegated light brownish gray (10YR 6/2) and white (10YR 8/2) very fine sandy oam dark brown (10YR 3/3) mo st massive, hard triable, nonsticky and nonplastic, few very fine roots common very fine tubular pores, 90 percent smaltim dunnodes strongly effervescent, strongly a value.

Thickness of the solum and depth to the duripan are 12 to 20 inches

The Bt honzon is sandy loam or sandy clay loam that is 18 to 35 percent clay and less than 15 percent rock fragments. Reaction is slightly acid or neutra.

The duripan is massive or has weak platy structure in the upper part. The lower part of the C horizon is weakly cemented or strongly cemented, medium textured material with few or common, thin, discontinuous indurated si callaminae. The indurated laminae are noncalcareous except for the thin time coatings.

Wellsed Series

The Wellsed series consists of moderately deep, were drained, moderately slowly permeable so is on old a ruvial fans. These soils formed in alluvium derived mainly from granitic rocks. Slopes are 2 to 8 percent.

Typical pedon of Wellsed gravelly fine sand, in an area of Wellsed-Wed ar association, about 450 feet north and 500 feet west of the southeast corner of sec. 36, T. 7 N . R. 27 E.

- At1—0 to 2 inches, pale brown (10YR 6/3) gravelly fine sand, brown (10YR 4/3) moist, single grain, loose nonsticky and nonplastic, few very fine roots, many very fine interstitial pores, 20 percent fine pebbles, neutral, abrupt smooth boundary.
- A12 -2 to 6 inches, aght gray (10YR 7/2) gravelly loamy fine sand, brown (10YR 4/3) moist, weak medium and fine granular structure; soft, very friable,

nonsticky and nonplastic, few medium roots and common fine and very fine roots common fine vesicular pores and many very fine interstitial pores. 15 percent fine pebbles ineutral abrupt wavy boundary.

B2t—6 to 10 inches, light ye owish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist, moderate medium and fine subangular blocky structure hard, fnable sticky and plastic, few medium roots and many fine and very fine roots, few fine and common very fine tubular pores, many thin and few moderately thick clay films on peds and lining pores, 20 percent fine pebbles moderately aikaline clear wavy boundary.

gravelly sandy clay loam, dark ye owish brown (10YR 4/4) moist, weak medium and coarse subangular blocky structure, slightly hard, fnable sticky and slightly plastic, common fine and very fine roots many very fine interstital pores, continuous thin clay bridges 15 percent line pebbles, strongly alkaline clear wavy boundary.

C1ca—15 to 19 inches, very paie brown (10YR 7/3) gravelly sandy diay learn yellowish brown (10YR 5/4) moist, massive slightly hard triable, nonsticky and nonplastic, few fine and very fine roots, many very fine interstitial pores, 20 percent fine pebbles very strongly alkaline, strongly effervescent, gradual wavy boundary.

C2c i — 18 to 35 inches pale brown (10YR 6/3) gravely loamy sand brown (10YR 4/3) moist, massive slightly hard friable, nonsticky and nonplastic few line and very fine roots, many very fine interstital poresity 25 percent fine pebbles, 20 percent hard durinodes, slightly effervescent in spots, very strongly alkaline abrupt wavy boundary.

C3sicam—35 to 50 notes indurated dumpan indurated, continuous laminar cap 5 to 10 m imeters thick clear wavy boundary.

C4sica—50 to 60 inches, weakly slica- and limecemented loamy sand and sandy loam; strongly effervescent, strongly alkaline.

Thickness of the solum is 12 to 20 inches. Depth to the indurated duripan is 20 to 40 inches. Reaction is mildly askaline to strongly askaline in the Bt horizon and is strongly askaline in the Csical horizon. The Bt horizon averages 20 to 35 percent clay and 15 to 35 percent rock fragments, mostly peobles.

Whichman Series

The Whichman series consists of deep, well drained moderately rapidly permeable soils on the sides of hills and mountains. These soils formed in residuum and colluvium derived from basic igneous rocks. Slopes are 30 to 50 percent.

Typical pedon of Whichman cobbly loamy sand in an area of Whichman-Ister Rock outcrop association, about 1.300 feet east and 2.500 feet north of the southwest corner of sec. 17. T. B.N., R. 27. E.

- A11—0 to 2 inches, brown (10YA 5/3) cobbiy ligarity sand dark brown (10YR 3/3) moist; weak thin platy structure soft, very fnable, nonsticky and nonplastic many fine and very fine roots, few fine and many very fine interstitual pores. 15 percent pebbles and 15 percent cobbles, mildly alkaline, clear smooth boundary.
- A12—2 to 15 inches, brown (10YR 5/3) cobbly loamy sand, dark brown (10YR 3/3) moist moderate medium and fine subangular blocky structure, solf, very finable inonsticky and nonplastic, common coarse and medium roots and many fine and very fine roots common fine and many very fine interstitial pores. 15 percent pebbles and 15 percent cobbles, mildly alkaline, clear smooth boundary.
- 82—15 to 25 inches brown (10YR 5/3) extremely stony sandy loam, dark brown (10YR 4/3) moist moderate medium and line subangular blocky structure sightly hard, very thable nonsticky and nonplastic, common coarse roots and many medium, fine and very fine roots few fine and many very fine pores, 20 percent pebbles, 25 percent cobbles, and 20 percent stones, mildly alkaline; gradual wavy boundary.
- C1—25 to 33 inches paie brown (10YR 6/3) extremely stony sandy loam brown (10YR 4/3) moist massive: slightly hard very friable, slightly slicky and nonplastic common fine roots, common fine and very fine tubular pores. 25 percent peobles, 15 percent cobbles, and 25 percent slones, mildly alkaline gradual smooth boundary.
- C2—33 to 56 inches very pare brown (10YR 7/3) very cobbly sandy loam, brown (10YR 5/3) moist massive, soft, very friable, nonsticky and nonplastic, few medium and fine roots and common very fine roots, few fine and many very fine interstitia pores, 20 percent pebbies, 20 percent cobbles, and 15 percent stones; mildly alkaline; abrupt wavy boundary.
- R-56 inches, fractured andesite; root mats in fractures.

Thickness of the mollic epipedon is 10 to 18 inches Thickness of the solum is 20 to 30 inches. Depth to bedrock is 40 to 60 inches. The control section is loam, sandy loam, or loamy sand and averages 35 to 60 percent rock fragments, mainly cobbies and stones, and 10 to 18 percent clay. Reaction is neutral or mildly awaline.

The C horizon is sandy loam or loamy sand that has more than 35 percent rock fragments, mostly cobbies and stones.

Wile Series

The Wife series consists of shallow well drained, slowly permeable soils on mountainsides and ridges. These soils formed in residuum derived from granite. Slopes are 15 to 30 percent.

Typical pedon of Wile gravelly sandy loam, in an area of Minneha Bent-Wile association about 3,000 feet due north of Lobdell summit. 1,700 feet south and 1,000 feet west of the projected northeast corner of sec. 10 T. 9 N. R. 25 E.

A11—0 to 3 inches dark grayish brown (10YR 4/2) gravely sandy loam ivery dark grayish brown (10YR 3/2) moist, weak medium subangular blocky structure soft, very friable inonsticky and nonplastic few fine roots many fine and very fine interstital poresist 25 percent pebbles and 5 percent cobbles, neutral clear smooth boundary.

A12—3 to 7 inches, dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist important medium and line subangular blocky structure: slightly hard friable slightly sticky and slightly prastic common medium and fine roots common the interstitial pores and few fine lubular pores 25 percent pebbies, neutral clear smooth boundary.

82t—7 to 12 nches, brown (7.5YR 4/4) gravely clay dark ye owish brown (10YR 3/4) moist moderate medium angular blocky structure hard firm, sticky and plastic, few coarse roots and many medium and fine roots common medium and fine tubular pores many thick clay films on peds and inling pores, 30 percent pebbles, neutral gradual smooth boundary

B31—12 to 18 inches, brown (7.5YR 4/4) gravely clay loam, dark ye owish brown (10YR 3/4) moist massive, hard firm, sticky and plastic, few coarse roots and common medium and fine roots, few fine lubular pores, many thick clay coatings on mineral grains, 35 percent peobles, neutral clear smooth boundary.

Cr—18 inches soft, weathered granite, clay coatings and some roots extending into fractures

The mollic epipedon is 7 to 9 inches thick. Thickness of the solum and depth to the paralithic contact are 12 to 20 inches. Hard bedrock is below a depth of 40 inches. Reaction is slightly acid or neutral.

The 8t horizon is gravely clay or gravelly clay loam that is 35 to 45 percent clay and 20 to 35 percent rock fragments, mostly fine pebbies

Yerington Series

The Yenngton series consists of very deep, well drained rapidly permeable soils on alluvial flats and alluvial fans. These soils formed in eolian material Slopes are 0 to 15 percent.

Typical pedon of Yerington, pamy fine sand 2 to 4 percent slopes, about 200 feet south of the northeast corner of sec. 32, T. 13, N., R. 26, E.

A1—0 to 8 inches, pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist single grain, loose, nonsticky and nonp astic, common very line roots, many very fine interstitial pores, moderately alkaline abrupt wavy boundary.

C1—8 to 19 inches, paie brown (10YR 6/3, loamy fine sand brown (10YR 4/3) moist, massive, soft very finable, nonsticky and nonplastic common very fine roots, many very fine interstitial poresistrongly alkaline clear wavy boundary.

C2 -19 to 27 inches pale brown (10YR 6/3) pamy time sand brown (10YR 4/3) moist massive soft vary fnable ponsticky and homplastic; many very fine roots many very fine interstitial poros, sightly effervescent strongly alkaline, clear wavy boundary.

C3sica—27 to 45 inches pale brown (10YR 6/3) sandy feam brown (10YR 4/3) moist, massive; soft very frable nonsticky and nonplastic 10 percent arge hard firm durinodes, common very fine roots, many very fine interstital poresistrongly effervescent strongly alkaline: gradual wavy boundary

C4ca—45 to 60 inches pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist, massive soft very friable nonsticky and nonplastic few very fine roots many very fine interstitlal poresistrongly effervescent strongly alkaline.

Depth to the Coa horzon is 12 to 40 inches. The control section is stratified but averages loamy fine sand or loamy sand that is 2 to 5 percent clay and less than 15 percent rock fragments. Reaction of the A horizon is mildly alkaline or moderately alkaline. A lewithin clay ameliae are in the upper part of the C horizon in some pedons. Reaction of the C horizon is strongly alkaline or very strongly alkaline. A Csica horizon is present in some pedons.

Yerington Variant

Yerington Vanant consists of very deep, well drained, moderately slowly permeable soils on long ridges and isolated hills. These soils formed in equal material derived from mixed rock sources. Slopes are 2 to 4 percent.

Typical pedon of Yerington Variant loam, 2 to 4 percent slopes about 1,200 feet west and 2 600 feet north of southeast comer of sec. 36, T. 12 N., R. 25 E.

A11—0 to 2 inches, grayish brown (10YR 5/2) roam, dark brown (10YR 3/3) moist; strong fine granular structure soft, friable, slightly sticky and slightly plastic, many very fine interstitial poresistightly.

effervescent, strongly alkaline; abrupt smooth boundary

A12—2 to 4 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium platy structure, siightly hard friable, slightly sticky and plastic, few medium, fine and very fine roots, few fine and very fine tubular pores, slightly effervescent, moderately alkaline clear smooth boundary.

C1—4 to 26 inches, paie brown (10YR 673) learn brown (10YR 4/3) moist, massive; soft, friable slightly slicky and plastic, common very fine roots and few fine and medium roots, many very fine interstitiat pores, slightly effervescent in some parts, strongly

alkaline, abrupt smooth boundary

C2—26 to 45 inches ipale brown (10YR 6/3) clay loam. brown (10YR 4/3) moist massive, slightly hard finable sticky and plastic, common very fine roots and few medium and fine roots many very fine intenst tiel pores, slightly effervescent, strongly a kaline, clear smooth boundary.

C3—45 to 60 inches, pale brown (10YR 6.3) dam brown (10YR 473) moist, massive soft friable slightly sticky and sightly plastic, many very fine and few fine roots, many very fine interstitial pores slightly differvescent strongly alkaline.

The soil is nonettervescent to strongly effervescent throughout the profile but it is noneffervescent in a pedons between depths of 10 and 20 inches. Reaction is moderately alkaline to very strongly alkaline. The C horizon is stratified learn to clay loam and averages 20 to 30 percent clay.

Zephan Series

The Zophan series consists of moderately deep, well drained, slowly permeable soils on hillsides. These soils formed in residuum and colluvium derived from thyolite and andesite. Slopes are 15 to 50 percent.

Typical pedon of Zephan extremely cobbly loam, in an area of Loomer Zephan-Olac association, about 400 feet east and 500 feet north of the southwest corner of sec. 12 T 14 N R 23 E.

A1—0 to 2 nches, light brownish gray (10YR 6/2) extremely cobbly loam, brown (10YR 4/3) moist, weak medium and fine subangular brocky structure slightly hard, very finable, slightly sticky and slightly plastic many fine and very fine vesicular pores, 25 percent pebbles, 25 percent cobbles, and 10 percent stones ineutral; abrupt wavy boundary

B1t 2 to 4 inches brown (7.5YR 4/4) extremely gravely clay loam, brown (7.5YR 4/4) moist, strong fine granular structure; slightly hard firm, sticky and plastic; few fine and common very fine roots, many very fine interstitial pores, continuous thin clay films on peds, 40 percent peobles, 15 percent coobles and 5 percent stones; neutral clear wavy boundary

B21t—4 to 10 inches brown (7.5YR 4/4) extremely gravelly clay brown (7.5YR 4/4) moist, strong fine subangular blocky structure, hard, firm, very sticky and very plastic, few medium roots, common fine roots and many very fine roots, few medium and common fine and very fine tubular pores, 40 percent pebbles, 15 percent cobbles, and 5 percent stones, sightly acid clear wavy boundary.

8221—10 to 20 inches, brown (7 5YR 5/4) very cobbly clay brown (7 5YR 4/4) moist moderate medium and fine subangular blocky structure, hard very firm, very sticky and very plastic, common medium fine, and very fine roots, few fine and common very fine tubular pores, 30 percent peobles, 20 percent cobbles, and 5 percent stones, slightly acid, gradual

wavy boundary

Bit 20 to 37 inches yellowish brown (10YR 5/4) vary cobbiy sandy day loam, dark yellowish brown (10YR 4/4) moist, weak medium subangular blocky structure hard fnable laticky and plastic, few fine and very fine roots, common very fine tubular pores 30 percent pebbles 20 percent cobbias and 5 percent stones slightly acid labrupt wavy boundary

Cr-37 inches, weathered andesite roots and day I ms

along fracture planes

Thickness of the solum and depth to the para thic contact are 25 to 40 inches. Hard bedrock is below a depth of 40 inches. Reaction of the A horizon is medium acid to neutra.

The 8t horzon averages clay and sandy clay but is clay loam in some pedons. It has 35 to 45 percent clay and averages 35 to 60 percent rock fragments with some parts having as much as 75 percent rock fragments, mostly cobbles. Reaction is medium acid to slightly acid.

Zyzzi Series

The Zyzzi series consists of very shallow, well drained moderately slowly permeable soils on hills and rolling uplands. These soils formed in residuum derived from granitic bedrock. Slopes are 8 to 30 percent.

Typical pedon of Zyzzi very grave ly sandy loam, 8 to 30 percent slopes, about 450 feet north and 1,550 feet west of the southeast corner of sec. 36. T. 9 N. R. 27 E.

A1—0 to 2 inches brown (10YR 5-3) very grave ly sandy loam, dark brown (10YR 4/3) moist, weak medium and thin platy structure, soft, very friable, nonsticky and nonplastic, few fine and common very fine roots, common fine and many very fine interstitial pores; 40 percent fine pebbles neutral abrupt smooth boundary.

B2t—2 to 6 inches, brown (7 5YR 474) extremely gravely sandy clay loam, dark brown (7 5YR 374) moist, moderate medium and fine subangular blocky

structure, hard, firm, sticky and plastic, common medium and fine roots and many very fine roots, few fine and common very fine tubular pores. 60 percent fine pebbles; many thin and moderately thick cray films and bridges and few thick clay films and bridges on peds and fining pores ineutral, abrupt wavy boundary.

Cr-6 to 40 inches, soft, weathered gran tic bedrock

Thickness of solum and depth to the paralithic contact are 4 to 10 mohes. The control section averages 20 to 35 percent clay and 50 to 75 percent rock fragments, mostly fine pebbies. Reaction is neutral or mitdly alkaine.

The B2t horizon has 60 to 75 percent rock fragments mostly fine peobles, and 25 to 35 percent clay

Formation of the Soils

Soi is a natural body on the earth's surface in which plants grow it is a mixture of varying proportions of rocks, minerals, organic matter, water, and air. The rocks and minerals are fragmented and are partly or wholly weathered. Soils have distinctive tayers, or horizons, that are the product of environmental forces acting upon material deposited or accumulated through geologic addivity.

The overall andscape of the survey area, mainly the mountains and valleys, is the result of geologic, stratigraphic and structural control. The present topography and andforms, however are primarily the result of events during Quaternary time. The funds of soil that formed are indicative of the stability and age of the surfaces of the landforms on which they occur.

Soils differ from one another in different localities and within short distances. The differences are the result of the interaction of five soil-forming factors that are known to affect soil formation. These factors are (1) climate mainly the temperature and kind and amount of precipitation that have existed since accumulation of the parent materia. (2) relief, mainly as it affects the internal and external soil properties such as drainage aeration susceptibility to erosion, and exposure to sun and wind (3) biological forces, mainly the plant cover and the organisms living in and on the soil. (4) parent materials, including fexture and structure of the material as well as its mineralogic and chemical composition, and (5) the ength of time that the soil-forming factors have been operating.

Climate

The climate of the survey area is characterized by warm dry summers and cool, moist writers. The average annual precipitation ranges from about 5 inches at the lowest elevations in the eastern central valleys to about 18 inches or more at the highest elevations in the Pine Nul Mountains to the west and the Desert Peak and Bald Mountain areas to the south. The average annual air temperature ranges from about 54 degrees F in the eastern part to 41 degrees F or lower in some of the high mountain ranges. Major climatic variations are the result of the effects of topography and relief. Temperature decreases with elevation. Precipitation increases with elevation, and the rate of increase is higher in the mountainous area in the western and southern parts of the survey area than in the eastern.

part. As a consequence, the soils in the survey area can be divided into general climatic zones with respect to elevation and long tude.

At the lower elevations, 4 200 to 5 000 feet, the average annual precipitation is about 4 to 9 inches. In this and part of the survey area, weathering of parent material is slow, leaching is incomplete, and the rate of eluviation and inuviation is very slow. The plant cover a sparse and consists mainly of drought- and said-tolerant shrubs. Typically, the soils are low in organic matter content and have a thin, light-colored A horizon. Soluble saits and calcium carbonate accumulate in the soil profite at a relatively shallow depth.

With increasing elevation there is an accompanying increase in precipitation, which results in the formation of soils that are leached of sails and calcium carbonate to a greater depth, have tower reaction, support different kinds and a higher density of vegetation, and have a thicker and darker-colored A horizon. Fulstone so is (Abruptic Xerollic Durargids) and Veta soils (Xerollic Camborthids) are examples of soils that formed in areas at lower elevations where precipitation is about 10 inches. Hyloc and ister soils (Andic Argicerolls) are examples of soils that have formed in areas at intermediate elevations.

At the highest elevations, as much as 10 000 feet, precipitation is 12 to 16 inches or more. Leaching of saits and calcium carbonate is more intensive. The 50 s are neutral or slightly acid and have a thick A horizon that is high in content of organic matter. Bradshaw soils (Typic Hapioxerolis), Grean soils (Pachic Hapioxerolis), and Grean Variant soils (Typic Cryoborolis) are examples of soils that formed at the higher elevations.

In winter, freezing and thawing generally occurs throughout the survey area, except in those areas that generally are insulated by snow cover. The effects of frost action are discernible by the heaving of plants, development of miniature stone rings, and erosion of the surface of the soils as a result of so fluction. In some areas at the higher elevations, freezing and thawing has fractured and displaced the bedrock.

Relief

Relief, through its effects on drainage, runoff, erosion and exposure to the sun and wind, has had an important effect on soil formation in the survey area. The mountain

ranges, valleys, and flood prains reflect the variations in relief in the area.

The mountain ranges are mainly characterized by excessive relief. Runoff is rapid or very rapid, and the hazard of erosion is high. The removal of material by erosion inhibits or prevents soil development Development of soils on unstable mountain surfaces that are subject to a high rate of geologic erosion is pornarily limited to accumulation of organic matter and formation of a dark-colored A horizon. A cambic or an argilic horizon has formed in soils on the more stable mountain. surfaces, where the rate of geologic erosion has been slower Berit soils (Xerollic Heplargids) and Hyloc soils (Aridic Argixerolls) are examples of soils that formed on the more stable mountainsides and have an arquire horizon. Whichman soils (Aridic Haploxerolls) are an example of soils that have a cambic horizon. Minneha and Nati soils (Andic Haploxerolls) are examples of soils that formed on the less stable mountainsides.

Soils on concave, north-lacing mountainsides commonly have snow pockets that remain until late in spring or early in summer. The effect of temporature and moisture is enhanced in these areas resulting in the growth of dense stands of shrubs and grass. The soils in these areas have developed a thick, dark-colored A horizon that has a high content of organic matter. Drift and Glean soils (Pachic Haploxerolls) are examples of these soils.

The vaileys are essentially either semibolsons or botsons that receive runoff primarily from the surrounding mountains in this survey area the valleys are characterized by a series of nearly level basin floors bordered by a piedmont consisting of alluvial fans or coalosced fan piedmonts (14). They consist of Tertiary-Quaternary valley fill material. Small playas or intermittent takes are in Churchili Valley and at the northern ends of Mason and Smith Valleys.

in the Smith Valley and Carson Plains areas, stream erosion has dissected parts of the valley fill. Downcufting of the valleys has been interrupted several times, and these interruptions are marked by the development of terrace and a juvial fan remnants. The dissection patterns in these areas have resulted in sloping nterfluvial surfaces, steep interfluvial side slopes, and flood plains along drainageways. The interfluvial areas have been relatively stable over a long period of time as a result of drainage water bypassing the uplands through dissecting channels. Saralegui soils (Xerollic Haplargids), Wedertz soils (Durixerollic Haplargids) and Wellington soils (Xerolic Durargids) are examples of soils on stable nterfluves. Weena soils (Typic Tomorthents) are examples of soils on steep interfluvial side slopes. Fation soils (Aquic Xerofluvents) and Rose Creek soils (Fluvaquentic Haploxerolls) are examples of soils in dra nageways.

The nearly level old lake plains and alluvial flats in Churchill Valley are remnants of Pleistocene age Lake Lahontan. Runoff in these areas is slow, and drainage is somewhat restricted. The soils are light in color and contain soluble sails. Lahontan solus (Aquic Xerolliuvents). Wabuska soils (Aeric Halaquepts) and Rusty soils (Typic Natrargids) are examples of soils that formed in these areas.

The gently sloping to strongly sloping alluvial tans bordering basin fill areas in Smith, Mason, and Churchin Valleys and Carson Plains have a relatively smooth, undissected surface. The soils that formed on these lans are subject to medium runoff and are well drained. Cleaver soils (Typic Durargids). Maipais soils (Typic Camborthids), and Perazzo soils (Typic Haplargids) are examples of soils in these areas.

The nearly level flood plains and low terraces along the Walker River in Mason and Smith Valleys and the Carson River on the Carson Plains and in Churchill Valley have a high water table. Runoff is very slow, and some of the soils are subject to flooding. The soils in these areas support dense stands of meadow vegotation that has contributed a large amount of organic matter to the soils, producing a dark colored A horizon. Some of these soils have excess soluble saits in the upper part Dia. Dithod, and East Fork soils (Fluvaquentic Haploxeroils) are examples of these soils.

Biological Forces

Plants, animals, insects, and microflora are important biological forces that affect soil formation in this survey area. Although animals such as badgers and ground squirrels and insects such as cicadas have had some effect on soil development, plants appear to have had the major biological influence on the development of soils in the area.

The vegetation in the area has been a particularly important factor in reducing erosion. It has he ped to maintain the stability of the land surfaces so that normal soil formation could take place.

Because of cilmatic differences plants vary considerably in kinds and amounts as elevation increases. On take plains, terraces, and alluvial fans at low elevations, the main plants are drought- and salf-tolerant shrubs. Because of the scarcity of available moisture, the plants cover only a small part of the surface. They add little organic matter to the soils and provide little protection from the wind and sun. Salt-tolerant shrubs also tend to recycle salts from the deeper layers of the soil to the surface layer.

On the flood plains, where drainage is restricted, the dense growth of meadow vegetation has supplied the organic matter that gives soils such as those of the East Fork senes (Fluvaquentic Haploxerolls) a dark-colored A borzon.

Alluvial tans, terraces, and footbills at higher elevations, primarily in the western part of the area, support a piant cover of shrubs and grasses. The density

of plants is somewhat higher, soluble salts are leached to a greater depth in the profile, and a moderate amount of organic matter has accumulated in the A horzoni

The mountainous areas support more dense stands of shrubs grasses, and, in some places, trees. Because of the more abundant vegetation, the A horizon in the soils in these areas is thick, is high in content of organic matter, and is dark in color.

Parent Material

Parent material is the weathered rock or unconsolidated material from which soits form. The hardness, grain size, and porosity of the parent material and its mineralogic and chemical composition greatly influence soil formation. The parent material in the survey area is mainly intrusive and extrusive volcanic rock, sedimentary rock, colluvium, alluvium, lacustine sediment, and eolian material, including volcanic ash and sand. Minor amounts of metasedimentary and metavolcanic rocks are common in localized areas.

The voicanic rock includes basalt, andesde irhyolite. and gran tic rock. The soils in the desert and on the Pine Nut Mountains, Singalse and Sweetwater Ranges, and Pine Grove Hills formed in material derived from voicanic rock. The material weathered from these rocks also is a component of the colluvium, alluvium, and basin fill material in adjacent valeys. The alluvium in the valeys throughout the area is strongly influenced by granific rock from the Sierra Nevada Range, Volcanic rock, contains appreciable quantities of minerals that weather to clay. So is that formed in material derived from the more aliceous rock, particularly tuff, commonly have slica-comented ayers. Because the material derived from volcanic rock commonly weathers to clay most soils on sufficiently stable landforms that formed in this materia, over long periods of time have an arcilic horizon Cagle soils (Andic Argixerolls), Loomer soils (Lithic Argixero is), Lapon soils (Xerollic Durargids), and Surgem soils (Xerollic Haplargids) are examples of these 801.5

Colluvium has accumulated on steep mountainsides as a result of gravitational forces. The colluvium generally is poorly sorted has many rock fragments, and has minerals that weather to day. Because many of the colluvial landscapes are not stable, the soils in these areas do not have an argific horizon. Drit soils (Pachic Mapioxeroils) are examples of such soils.

Late Tertiary sedimentary rock occurs primarily in the Church I Valley area and along the footh is of the Pine Grove Hills. This bedrock consists of older alluvium and lakebed deposits containing interbedded biffaceous shale, diatomaceous shale, siltstone, sandstone and conglomerate. Most of the soils that formed in material derived from this rock contain rock fragments and minerals that weather to clay Vylach soils (Haplic Durargids) and Ravenell soils (Xerollic Haplargids) are

examples of soils that are on old, stable surfaces and that have an argillic horizon. Celeton and Weena soils (Typic Tomorthents) are examples of shallow undeveloped soils on unstable surfaces that do not have an argillic horizon.

Alluvium derived from various kinds of rock and deposited on fan piedmonts and ai uvial fans is mostly loamy and has gravel, cobbies, and stones. It is porous and contains minerals that weather to clay and soluble sitica that causes cementation and forms a duripan Cleaver soils (Typic Durargids) and Fulstone soils (Abruptic Xerollic Durargids) are examples of soils on stable alluvial fans that have an argillic horizon and a duripan

Alluvium deposited on alluvial flats and flood plains consists of sandy, silty, and clayey material. Soluble salts are common in some of the soils that formed in this material. Although the material contains weatherable minerals, the soils are young and exhibit little soil development. Lahontan soils (Aquic Xerol uvents), Wabuska soils (Aenc Halaquepts), and Dithod soils (Fluvaquentic Haploxetoils) are examples of these soils.

Volcanic ash and eolian material presumed to have been deposited during the Mazama ashlata have probably been instrumental as a source of soluble siticator the formation of dunnodes and dunpans in the solator the formation of dunnodes and dunpans in the solator the area. Volcanic ash from the Mono ashfalls has been preserved as thin strata in some of the solator aliuvial fans in the southeastern part of the area and on adjacent stream terraces and flood plains along the Walker River Examples of these solate Malpais solator (Typic Camborthids) on alluvial fans and Dia solator (Fluvaquentic Hapioxerolis) and Failon soils (Aquic Xerolluvents) on stream terraces and flood plains

Sandy eclian material is limited in the area. It is mainly in Campbel and Churchill Valleys and in small areas east of Mason Valley. Sandy soils such as those of the Hawsley senes (Typic Tompsamments) formed on stabilized and less active sand sheets associated with alluvia tans and beach terraces. Soils such as soide soils (Typic Tompsamments) formed on semistabilized dunes and dunes superimposed over beach terraces.

Time

Time is required for the formation of soil horizons. The amount of time required depends upon the other soil-forming factors. Thickness and other characteristics of the horizons reflect the relative age of soils. The age, or expression of the soil horizons, is a reflection of the amount of weathering of parent material, a result of the interaction of moisture, temperature, and biological activity over time.

The soils in this survey area range from a few years to possibly a few hundred thousand years of age or more. This range in age is a major reason for the many kinds of soil in the area.

The influence of time and other soil-forming factors is not well understood by soil scientists and geologists working in this field. Many soil scientists and some geologists feel that the weathering of parent material and development of soil profiles have been essentially continuous, with little change in rate throughout Quaternary time (12, 13, 16, 19).

Recently geologists concerned with differentiating Ouaternary deposits have proposed that soil development has not proceeded continuously at the same rate but has taken place intermittently at rapid rates (9, 10, 11, 15). These geologists have developed the technique of mapping soil stratigraphic units that use soil profiles as stratigraphic markers to differentiate and correlate Quaternary deposits. The concept of soil development is based on the assumption that profiles formed in response to infrequent combinations of climatic factors that induced minimal erosion and deposition and a greatly accelerated rate of chemical wealthering.

A though disagreements exist in regard to the relative nil uences of time and other soll-forming factors, the concept of intermittent soil formation has been supported by numerous studies and provides a practical technique to discuss the age of the soils in the survey area in relation to geologic climatic units in Quaternary time. For the purposes of this discussion, time stratigraphic names as set forth by Birkeland (3) are used. These are Holocene Late Wisconsin Middle Wisconsin, Early Wisconsin, and pre-Wisconsin.

The diagnostic properties of subsurface horizons and the strength of expression of the horizons provide general clues to the age of the soils in the area (17) Important diagnostic subsurface horizons present in soils in the area include argillic, hatholiand cambic horizons and horizons exhibiting sinca cementation

Prominent argillic honzons in this area generally occur only in solis that formed primarily during Wisconsin and pre-Wisconsin (4, 5, 18) time. With increasing age and constancy of other conditions argillic honzons become finer in texture, become somewhat thicker, and tend to develop abrupt upper boundaries. Weakly expressed, thin argillic horizons may have formed during very Late Wisconsin or early Holocene time.

Natric horizons are argillic horizons that formed under the influence of a high content of exchangeable sodium. The effect of sodium on the dispersion of clay may tend to accelerate the rate of formation of argillic horizons. This is not believed to be significant, however, except in weakly expressed natric horizons that formed on Holocene surfaces. Following earlier development as argilic horizons, prominent natric horizons may have developed their present characteristics as a result of the addition of sodium from equan deposits. This is believed to be an important process that affects the physical and chemical properties of soils in the area.

The voicanic glass in sediment derived from pyroclastic materia, and in eolian deposits of volcanic ash is a source of silica that causes the formation of a dunpan and durinodes in many of the soils in the survey area. A dunpan is a massive, platy horizon cemented with silica and, in most places, with accessory calcium carbonate. Because of the association of duripans with prominent argillic horizons, massive dunpans capped with sincal and time-cemented laminar layers are probably the oldest kind of dunpan in the area and are of early Wisconsin to pre-Wisconsin age. A platy or faminated dunpan tends to develop in loamy materia. A thin dunpan that is overlain by laminar layers, by a weak, discontinuous, silica-cemented ayer or by durinodes has apparently developed in Holocene age losss or loamy a uvium generally deposited on gravelly material. These forms of silica cementation apparently are capable of forming during a relatively short period of time and are probably less than 6,000 years old

The youngest soils in the area are those that formed in recently aggraded material or in material recently exposed by erosion, included among these soils are Fallon soils (Aquic Xerofluvents) and Juva soils (Typic Tornfluvents) that formed in recent alluvium she ow Celeton soils (Typic Tornorthents) that formed in material weathered from Tertiary sediment on up ands where geologic erosion has been active; and isoide soils (Typic Tornpsamments) that formed in eoi an material on semistabilized sand dunes.

Somewhat older soils are those that formed in alluvium on wet flood plains, in slowly aggrading material on insel lans, and in material on relatively recently eroded mountainsides. These so is have been stable long enough to have accumulated organic matter and formed a dark-colored A horizon. They do not have an argillic, natric, cambic, or calcic horizon, a duripan, or durinodes. They are probably less than about 1 000 years old. Rose Creek soils (Fluvaquentic Hapioxerolis) are examples of soils that formed in material on wet flood plains. Dithod soils (Fluvaquentic Haploxerolls) are examples of soils that formed in material on inset fans and wet flood plains. Shallow Nall soils (Aridio Haploxeroils) and Hartig Variant soils (Lithic Cryoborolls) are examples of soils that formed in material on mountainsides

The soils in the survey area that formed in alluvium and have developed a subsurface horizon containing durinodes or a horizon that is very weakly silicacemented are possibly slightly older than the soils that have developed a dark-colored A horizon as their only diagnostic feature. These soils are on alluvial flats. They formed in sait- and alkali-affected material containing appreciable amounts of volcanic ash. The content of soluble silica and the alkalinity probably contributed to relatively rapid formation of durinodes and incipient silica cementation. Obanion soils (Aenc Haiaquepts) are examples of soils that have incipient silica cementation.

Stable Holocene land surfaces less than about 10,000 years old and more than 2,000 years old are extensive an the survey area. The soils that formed in material on these surfaces have a cambic horizon that formed mainly in calcareous sediment. Original stratification is absent, and carbonates have been removed from the upper horizons and redeposited in the underlying ones (6, 8) The cambic horizons in the survey area and in other areas in northern Nevada are generally thought to be ass than 10 000 years old and possibly less than 7 000 years. This age has been determined mostly as a result of soil mapping in areas located below the last high stage of Pleistocene Lake Lahontan (7, 9, 10, 11) Toulon soils (Typic Camborthids) are examples of soils on alluvial lake plain terraces and bars of beach plains that have a cambic hor zon. Haybourne sorts (Xerofic Camborthids) have a cambic horizon and are on alluvial lans, Hartig soils (Aridic Haptoxerois) and Drit soils (Pachic Haploxerolls) have a cambic horizon and are on mountainsides

The landscapes in some areas are less stable and have been stripped by erosion during alle Wisconsin time, and a relict duripan has been exposed. During early to middle Holocene, a shallow layer of loess and loarny allow um derived from material on the surrounding land surfaces was deposited on these relict subsurface hor zons. Soil development in the upper part of the a unium has been minimal. Otomo soils (Typic Durorthids) on fair piedmonts and Osobb soils (Typic Durorthids) on foothills are examples of these soils.

So a that have a relict argue horizon are believed to be of early Holocene to pre-Wisconsin age. About 61 percent of the series in the survey area includes examples of these soils. These soils occur extensively on mountains, plateaus, foothills, alluvial fans, terraces, and dunes. The fact that extensive areas of these kinds of soil exist today is evidence that few if any major erosional and depositional events have taken place since the late Pie stocene.

During early Holocene as the level of Lake Lahontan receded dunes and sand sheets were formed from sandy eolian materia. As these landscapes stabilized and short periods of favorable climate prevailed, the soils that formed in this material developed a thin, very weakly expressed argiflic horizon. Patha soils (Typic Haplangids) are examples of these soils.

Stable Late Wisconsin or early Holocene land surfaces are not believed to be extensive in this area. So is that have formed in material on these surfaces have a thin weakly expressed or minimal argillic or natric horizon. Sarategul so its (Xeronic Haptargids) have a minimal argillic horizon and developed in material on alluvial fan skirts. Upon recession of the earlier stages of Lake Lahontan, ake terraces were exposed to the sol-forming

processes. Appian soils (Typic Natrargids) are examples of soils on take terraces that have a minimal natric horizon.

Stable early Late Wisconsin or Middle Wisconsin and surfaces are extensive in the survey area. The soils on these surfaces have a dominantly fine-loamy or loamy-skeletal argific or natric horizon. Wedertz soils (Dunxerollic Haplargids) are examples of soils that have an argific horizon and are on high old ake terraces. Pizene soils (Typic Natrargids) are examples of soils that have a natric horizon and are on older alluvial fans. Olac soils (Lithic Xerollic Haplargids) are examples of soils that have an argific horizon and formed in volcanic residuum. Devils soils (Aridic Argixerolls) are examples of soils on plateaus, and lister soils (Aridic Argixerolls) are examples of soils on mountainsides.

During this same period, thin and moderately thick duripans formed in some so a on the older landscapes in the area. We sed soils (Xero ic Durargids) are examples of these soils on allowal fans. Daizer soils (Haproxerollic Nadurargids) are examples of these so a on high, older take terraces. Nemico soils (Typic Nadurargids) are examples of soils on foothills and plateaus that have a duripan overlying bodrock.

Stable Early Wisconsin or early Middle Wisconsin and surfaces are also extensive. These soils have a wedeveloped argific horizon. They are on older land. surfaces where the ong har subsurface hor zon has neither been stripped by erosion nor deeply buried by sediment Tenoin series (Xerollic Paleargids) have a clayey skeletal argiflic horizon, and Smedley soils (Haplic Durargids) have a clayey argillic horizon and a thick dunpan and are on old alluvial fans. Nemico soils (Typic Nadurargids) have a clayey argilic horizon and a shallow, thin dunpan overlying bedrock and are on plateaus. Zephan soils (Xero) ic Haplargids) have a ciayey-skeletal argillic horizon, formed in volcanic residuum, and are on foot slopes. Cagle soils (Aridic Argixeroffs) have a clayey argiflic horizon, formed in residuum, and are on mountainsides.

Stable surfaces from the earliest part of Early Wisconstn and from pre-Wisconsin age are moderately extensive in this area. These surfaces have been deeply dissected and are ilmited to alluvial fan remnants and plateau remnants. Because of the relative stability of the land surfaces since dissection, the soils that developed on these remnants are considered to be the oldest in the area. Risue soils (Abruptic Durargids). Full stone and Reno soils (Abruptic Xerollic Durargids), and Lunder so s (Abruptic Andic Durixerolls) are examples of these soils on old alluvial fan remnants. Fulstone Variant soils (Abruptic Andic Durixerolls) are examples of soils on plateau remnants. All of these soils generally have a thick, clayey argistic honzon and a thick duripan.

References

- American Association of State Highway (and Transportation Officials 1970 Standard specifications for highway materials and methods of samping and testing. Ed. 10, 2 vol. illus.
- American Society for Testing and Materials. 1974.
 Method for classification of soils for engineering purposes. ASTM Stand. D 2487.69. In 1974. Annual Book of ASTM Standards, Part 19. 464 pp. illus.
- (3) Birke and, Pater W. 1974. Pedology, weathering, and geomorphological research. Oxford Univ. Press. Inc. New York, 285 pp.
- (4) Gile, L. H. and R. B. Grossman. 1968. Morphology of the argulic horizon in desert soils of southern New Mexico. Soil Sci., vol. 105, no. 1, 6-15.
- (5) Gile, L. H. and J. W. Hawley. 1966. Periodic sed mentation and soil formation on an alluvial fan predmont in southern New Mexico. Soil Sci. Soc. of Am. Proc. vol. 30: 261-268.
- (8) Gile L. H., F. F. Peterson, and R. B. Grossman. 1966. Morphological and genetic sequences of carbonate accumulation in desert so s. Soil Sci. vol. 101, 347,360.
- (7) Haw ey J. W. 1962. The late Pleistocene and recent geology of the Winnemucca segment of the Humboidt Piver valley, Nevada, Ph.D. thesis, Univ. of I.
- (8) Moor, J. G. 1969. Geology and mineralogy deposits of Lyon. Douglas, and Ormsby Counties. Nevada Nevada Bur. Mines Bu. 75, 45 pp. illus.
- (9) Morrison R B. 1964 Lake Laboritair Geology of the Carson Desert. Nevada. L S Geol Surv Prof. Pap. 401, 156 pp., illus

- (10) Mornson, R. B. 1964. Soil stratigraphy. Principles, applications to differentiation and correlation of Quaternary deposits and landforms, and applications to soil science. Ph.D. thesis, Univ. of Nev.
- (11) Mornson, R. B. 1965. Principles of Quaternary so stratigraphy. In Quaternary soils, NQA Proc. vol. 9. Vii Congress. 1-69.
- [12] Nik loroff, C. C. 1942. Fundamenta. formula of soil formation. Am. J. of Sc., vol. 240, 847, 860.
- (13) Nikiloroff C C 1949 Weathering and so levolution Soil Scill vol. 67, 219-223
- (14) Peterson, Frederick F. 1981. Landforms of the Basin and Range province defined for soil survey. Nev Agno Exp. Stal, Max C. Fleischmann College of Agnor, Univ. of Nev. Reno. Tech. buil. 28, 52 pp. 1.us.
- (15) Richmond G M 1962 Quaternary geology of the La Sa. Mountains. Utah U S Geof Surv Prof Pap 324 135 pp. rilus
- (16) Springer M E 1953 Sol-formation in the desert of
- (17) United States Department of Agriculture 1951. Sosurvey manual: U.S. Dept. Agric. Handb. 18, 503 pp., rus. (Supplements replacing pp. 173-188 issued May 1962).
- (18) United States Department of Agriculture 1975. So taxonomy: A basic system of soil classification for making and interpreting soil surveys. Soil Conserv. Serv., U.S. Dep. Agric, Handb. 436, 754 pp., Illus.
- (19) Ward, W. T. 1965. So is of the Adelaid Area. South Australia, in relation to time. In Quaternary soils INQA, Proc., vol. 9, VT Congress. 293-306.

Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by till age or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalin ty (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both that plant growth is restricted.

A luvium. Material such as sand, silt, or clay deposited on land by streams.

Area recialm (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and defineated as a single map unit.

Available water capacity (available moisture capacity) The capacity of soils to hold water available for use by most plants. It is commonly dotined as the difference between the amount of soil water at field moisture capacity and the amount at writing point it is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as: ~

						Inches	
very low			1.00			0 to 3 5	
Low			921 91			35 to 5	
Moderate.	-					51075	
felireh						7.5	

Badland. Steep or very steep, commonly nonstorry barren land dissected by many intermittent drainage channels. Badland is most common in semiand and regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Bunoff potential is very high, and geologic erosion is active.

Basal till, Compact glacial till deposited beneath the ice Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K) expressed as a percentage of the total cation exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bench terrace. A raised level or nearly level strip of earth constructed on or nearly on a contour supported by a barrier of rocks or similar materia , and designed to make the soil suitable for I liage and to prevent accelerated erosion.

B-sequum. Two sequences of soil horizons, each of which consists of an uvia horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding

Boulders, Rock fragments arger than 2 feet (60 centimeters) in diameter

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when freated with cold, dilute hydrochionic acid.

Capillary water. Water held as a film around soil particles and in thry spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soli cations are calcium, potassium magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise at meaning.

Channery soit. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, siate, limestone, or schist as much as 6 nches along the longest axis. A single piece is called a fragment.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency thage to control soil blowing.

Clay. As a sow separate, the mineral soil particles less than 0 002 m imeter in diameter. As a soil textural

- class soil materia. That is 40 percent or more clay less than 45 percent sand, and less than 40 percent sufficients.
- Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above 4. A claypan is commonly hard when dry and plastic or stiff when wet.
- Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Coarse fragments, if round, mineral or rock particles 2 mit meters to 25 cent meters (10 inches) in diameter; if list mineral or rock particles (Lagstone) 15.2 to 38.1 cent meters (6 to 15 inches) long
- Coarse textured soll, Sand or pamy sand
- Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 cent maters) in diameter.
- Coltuvium, Soil material, rock fragments, or both, moved by croop, side or local wash and deposited at the base of steep's opes.
- Complex slope, Irregular or variable slope. Planning or constructing terraces diversions, and other water-control measures on a complex slope is difficult.
- Complex, soil. A map unit of two or more kinds of soil or misce aneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Compressible (in tables) Excessive decrease in volume of soft soil under oad
- Concretions, Grains pellets, or nodules of various sizes, shapes and colors consisting of concentrated compounds or demented soil grains. The composition of most concretions is unlike that of the surrounding soil Calcium carbonate and iron oxide are common compounds in concretions.
- Consistence, soil. The feel of the soil and the ease with which a ump can be crushed by the fingers. Terms commonly used to describe consistence are—

 Loose.—Noncoherent when dry or moist; does not hold together in a mass.
 - Friable —When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump
 - Firm.—When moist, crushes under moderate pressure between thumb and forefinger but resistance is distinctly noticeable.
 - Prastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump: will form a "wire" when rolled between thumb and forelinger.

- Sticky —When wet, adheres to other mater at and tends to stretch somewhat and pull apart rather than to pull free from other material.
- Hard.—When dry, moderately resistant to pressure can be broken with difficulty between thumb and forehoper.
- Soft—When dry, breaks into powder or individual grains under very slight pressure.

 Cemented —Hard, little affected by moistening.
- Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
- Corrosive. High risk of corrosion to uncoated steel or detenoration of concrete.
- Cover crop. A close-growing crop grown primarily to improve and protect the sor between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Cutbanks cave (in tables). The walls of excavations tend to cave in or slough
- Decreasers. The most heavily grazed climax range plants. Because they are the most paratable, they are the first to be destroyed by overgrazing.
- Deferred grazing. Postponing grazing or arresting grazing for a prescribed period
- Depth to rock (in tables). Bedrock is too near the surface for the specified use.
- Diversion (or diversion terrace). A ridge of earth, generally a terrace built to protect downstope areas by diverting runoff from its natural course.
- Drainage class (natural) Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to a tered drainage, which is commonly the result of artificial drainage or impation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized.
 - Some are steep. All are free of the motting related to wetness.
 - Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.
 - Well drained —Water is removed from the so readily but not rapidly it is avaiable to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons.

Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained — Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solumion periodically receive high rainfall, or both.

Somewhat poorly drained. Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall of a combination of theso.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains well for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently pended. Yet where rainfall is high and hearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runott or surface flow of water from an area

Ourinodes. Weakly cemented to indurated nodules. The cement is presumably opal and microcrystalline forms of silica.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluviationse that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in biankets on the surface.

Erosion. The wearing away of the land surface by water, wind lice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic) Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as hood plains and coastal plains. Synonym: natural erosion *Erosion* (accelerated) Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or fill erosion.

Excess alkall (in tables). Excess exchangeable sod um in the soil. The resulting poor physical properties restrict the growth of plants.

Excess fines (in tables) Excess sit and day in the soil.

The soil does not provide a source of gravei or sand for construction purposes.

Excess time (in tables). Excess carbonates in the solithat restrict the growth of some plants.

Excess salts (in tables). Excess water soluble saits in the soil that restrict the growth of most plants.

Fan apron. A component landform comprised of a sheet-ke mantle of relatively young afturium covering part of an older fan piedmont (and occasionally an arturial fan).

Fan cottar. A component andform comprised of a thin short, relatively young mantle of a uvium along the very upper margin of a major alluvial fan at a mountain front.

Fan Skirt. A major landform comprised of laterally coalescing, small alluvial fans that issue from guilles cut into lor are extensions of, inset fans of the fan piedmont and that merge along the toe slopes with the basin floor. Fan skirts are smooth or only slightly dissected and ordinarily do not comprise component andforms.

Fan remnant. A generic term for component landforms that are the remaining parts of various older fans that either have been dissected or part ally buried.

Fast Intake (in tables). The rapid movement of water into the son.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil expressed as a percentage of the ovendry weight, after the gravitational or free, water has drained away, the field moisture content 2 or 3 days after a soaking rain: also called normal field capacity normal moisture capacity or capillary capacity.

First bottom. The normal flood plain of a stream subject to frequent or occasional flooding.

- Fiood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially
- Foot slope. The inclined surface at the base of a hill Forb. Any herbaceous plant not a grass or a sedge Fragile (in tables). A soil that is easily damaged by use

or disturbance

Frost action (in tables). Freezing and thawing of some moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesia, soil. The mode of origin of the soil. Refers

Genesia, soil. The mode of origin of the soil. Heters especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gligal. Commonly a succession of microbasins and microknolls in hearly level areas or of microvalleys and microridges parallel with the slope. Typically the microrelief of Vertisois—clayey soils having a high coefficient of expansion and contraction with changes in moisture content.

Glacial drift (geology). Pulverized and other rock material transported by glacia, ice and then deposited. Also the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology) Gravel sand, and sit, commonly stratified, deposited by glacial melt water

Glacial till (geology) Unsorted, nonstratified glacial of it consisting of clay sift, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits (geology) Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are strail ed and occur as kames, eakers, detas and outwash plains.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Gravel, Rounded or angular fragments of rock up to 3 inches (2 m limeters to 7.5 centimeters) in diameter. An individual piece is a pebble

Gravelly soil material. Materia, that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently liattened up to 3 inches (7.5 centimeters) in diameter.

Ground water (geology). Water filing all the unblocked pores of underlying material below the water table

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfal. The distinction between a guily and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tirlage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy loamy or clayey and is cemented by iron oxide, silical calcrum carbonate, or other substance. Horizon, soll. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the Soil Survey Manual. The major horizons of mineral soil are as follows.

O horizon.—An organic layer of Iresh and decaying plant residue at the surface of a mineral soil. A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

originally part of a B horizon A2 honzon. -- A mineral horizon, main y a residua. concentration of sand and silt high in content of resistant minerals as a result of the loss of adicate clay iron, auminum, or a combination of these B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as accumulation of clay, sesquioxides, humus of a combination of these, (2) prismatic or blocky structure. (3) redder or browner colors than those in the A horizon, or (4) a combination of these. The combined A and B honzons are generally called the solum, or true soil. If a soil does not have a B. horizon, the A horizon alone is the solum C honzon.—The mineral hor zon or layer, excluding indurated bedrock, that is affected by soilforming processes and does not have the properties typical of the A or B horizon. The material of a C honzon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes

A layer —Consolidated rock beneath the soil. The rock commonly underlies a C horizon but can be directly below an A or a B horizon.

Hummocky. Refers to a landscape of hillocks, separated by low sags, having sharply rounded tops and steep sides. Hummocky relief resembles rolling or undulating relief, but the tops of ridges are narrower and the sides are shorter and less even

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet

and having a low runoff potential. They are mainly deep, well drained and sandy or gravelly in group D, at the other extreme, are soils having a very slow off tration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is art licially drained and part is underlied.

Pluviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water at the time.

Increasers. Species in the cimax vegotation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to vestock.

Infiltration. The downward entry of water into the mmediate surface of sor other material its contrasted with percolation, which is movement of water through soil layers or materia.

Infiltration capacity. The maximum rate at which water can inflirate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be timited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Inset fan. A flood plain of commonly ephemeral stream that is confined between fan remnants, basin floor remnants, ballenas, or closely opposed fan toe siopes.

Intake rate. The average rate of water entering the soil under impation. Most soils have a fast mittal rate the rate decreases with application time. Therefore make rate for design purposes is not a constant but is a variable depending on the net impation application. The rate of water intake in inches per hour is expressed as follows.

Less than 0.2	VEN TW
0.2 to 0.4	94
0.4 to 0.75	minde at a 199
0.75 to 1.25.	4 2 =
1 25 to 1 75	moderate + 1 gh
1 75 to 2 5.	
More than 2.5	ven in

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade to lowing disturbance of the surface.

Irrigation. Application of water to soils to assist #1 production of crops. Methods of irrigation are—

Border—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth hidges called border dikes, or borders Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding—Water is released at intervals.

from closely spaced field ditches and distributed uniformly over the field.

Corrugation —Water is applied to small ic osely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Dnp (or Inckle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow —Water is applied in small ditches made by cultivation implements. Furrows are used for free and row crops.

Sponkier — Water is sprayed over the so-surface through pipes or nozzles from a pressure system Subirrigation. —Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil

Wild Rooding: —Water, released at high points is a lowed to how onto an area without controlled distribution.

Lacustrine deposit (geology) Material deposited in take water and exposed when the water level is gwered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement as well as the amount of soil and rock material, vary greatly.

Large stones (in tables) Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the so-

Leaching. The removal of soluble material from soil or other material by percolating water.

Light textured soil. Sand and loamy sand.

Liquid limit. The moisture content at which the sol passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent dray particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, srt loam, or sit

Metamorphic rock. Rock of any ongin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

- Mineral soil. Soil that is mainly mineral material and low in organic material. Its book density is more than that of organic soil.
- Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.
- Miscellaneous area. An area that has little or no natural soli and supports little or no vegetation.
- Moderately coarse textured soll. Sandy loam and fine sandy loam
- Moderately fine textured soll. Clay loam, sandy clay oam, and sitty clay loam.
- Moraine (geology) An accumulation of earth, stones, and other debris deposited by a gracier. Some types are terminal, lateral medial, and ground.
- Morphology, soil. The physical makeup of the soil including the texture, structure, perosity consistence color, and other physical, mineral and biological properties of the various horizons, and the thickness and arrangement of those horizons in the sol profile.
- Mottling, soil. Irregular spots of different colors that vary in number and size. Mothing generally indicates poor aeration and impeded drainage. Descriptive terms are as to lower abundance—few, common, and many size—line, medium, and coarse, and contrast—faint, distinct, and prominent. The size measurements are of the diameter along the greatest dimension. Fine indicates tess than 5 millimeters (about 0.2 to 0.6 nch), and coarse, more than 15 millimeters (about 0.2 to 0.6 nch).
- Munselt notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4
- Neutral soil. A soil having a pH value between 6.6 and 7.3 (See Reaction, soil)
- Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly in trogen, phosphorus potassium, calcium, magnesium, sulfur iron, manganese copper boron and zinc obtained from the sor and carbon, hydrogen, and oxygen obtained from the air and water.
- Organic matter. Plant and animal residue in the soil in various stages of decomposition
- Outwash, gladial. Stratified sand and graver produced by gladiers and carned, sorted, and deposited by gladia melt water.
- Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, hardpan, fragipan, claypan, plowpan, and traffic pan.
- Parent material. The unconsolidated organic and mineral materia in which soil forms.
- Ped. An individual natural soil aggregate, such as a granule, a prism, or a block

- Pedon. The smalest volume that can be called 'a soil.'
 A pedon is three dimensional and large enough to permit study of all horzons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
- Percolation. The downward movement of water through the soil
- Percs slowly (in tables). The slow movement of water through the sor adversely affecting the specified use.
- Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil Terms describing permeability are.

Viory Slow				less than 0.06 mch
Slow		4.		0.06 to 0.2 inch
Moderately (slow		H	0.2 to 0.6 inch
Moderate				0.8 inch to 2.0 inches
Moderately r	apid.			2 0 to 6 0 inches
Rapid		-		8 0 to 20 inches
Very rapid				more than 20 inches

- Phase, soil. A subdivision of a soil series based on leatures that affect its use and management. For example, slope, stoniness, and thickness.
- pH value. A numerical designation of acidity and a kalinity in soil (See Reaction soil)
- Piping (in tables). Formation of subsurface tunnels or pipelike cayities by water moving through the soil.
- Plasticity Index. The numerical difference between the liquid limit and the plastic limit, the range of moisture content within which the soil remains plastic
- Plastic limit. The moisture content at which a soil changes from semisorid to plastic
- Plowpan. A compacted layer formed in the soil directly below the plowed layer.
- Ponding. Standing water on soils in closed depressions.

 The water can be removed only by percolation or evapotranspiration.
- Poorty graded. Refers to a coarse grained soil or so material consisting mainly of particles of hearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
- Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to instail
- Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.
- Profile, soil. A vertical section of the soil extending through air its horizons and into the parent material
- Rangeland, Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands savannas,

many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Hange condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good fair or poor on the basis of how much the present plant community has departed from the potential.

Range alte. An area of rangeland where climate, soil and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soll. A measure of acidity or a kalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor a kaline. The degree of acidity or alkalinity is expressed as—

			20/4
Extremely seid			Below 4.5
Very strongly soid			451050
Strongly acid			511055
Modium soid.			56 to 60
Slightly acid.			61 to 65
Nostrai			66 to 73
Mildly alkaline			7.4 to 7.8
Moderately atkaline		_	7 B to B 4
Strongty elkeune -	***		851090
Very strongly alkating			9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soli material), Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Hill, A steep sided channel resulting from accelerated erosion. A nois generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rock fragments. Rock or mineral fragments having a diameter of 2 m imeters or more, for example pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Sha low root zone. The sois sha low over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called groundwater runoff or seepage flow from ground water.

Saline soll. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a

soil textural class, a son that is 85 percent or more sand and not more than 10 percent clay

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Saprolite (soil science) Unconsolidated residual materia underlying the soil and grading to hard bedrock below.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel, sandstone, formed from sand, shale, formed from clay and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequem. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the so is of a series have hor zons that are similar in composition, thickness, and arrangement

Shale. Sedimentary rock formed by the hardening of a clay deposit

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell (in tables). The shrinking of sor when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their diay fractions in warm-temperate humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate individual mineral particles that range in diameter from the upper limit of clay (0,002 millimeter) to the lower limit of very fine sand (0,05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sed mentary rock made up of dominantly siltsized particles

Site Index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils slickensides may occur at the bases of slip surfaces on the steeper slopes, on faces of blocks, prisms, and columns, and in swelling clayey soits, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded excavated or wet.

Slope. The not nation of the land surface from the horizontal Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow Intake (in tables). The slow movement of water into the soil.

Slow ref[i] (in tables). The slow tilling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables) Rock fragments less than 3 nones (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium absorption ratio (SAR) of a saturation extract or the ratio of Nar to Ca** + Mg** The degrees of sodicity are—

| SAR | Slight | Less than 13 t | Moderate | 13-30 t | Strong. | More than 20 t |

Soll. A natural three-dimensional body at the earth's auriace. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows.

	All simple
	€ 8
Yery coarse sand	20 to 10
Coarse sand,	10 to 0 5
Medium sarid	
Fine sand	0.25 to 0.10
very fine sand	0 10 to 0 05
Silt	0 05 to 0.002
Clay a un annual a	002 page 1944

Solum. The upper part of a soil profile, above the C horizon in which the processes of soil formation are active. The solum in soil consists of the A and 8 horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil Generally it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sed ment of variable thickness.

Stones. Rock fragments 10 to 24 riches (25 to 60 centimeters) in diameter

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—platy (laminated) primatic (vertical axis of aggregates ionger than honzontal), columnar (prisms with rounded tops), blocky (angular or subangular), and granular Structuraless soils are either single grain (each grain by itself, as in dune sand) or massive (the particles adhering without any regular cloavage as in many hardpans)

Subsoil. Technically the B horizon, roughly the part of the solum below plow depth.

Substratum. The part of the soil below the solum Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon, ighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the inplow layer, for the Apihorizon.

Taxadjuncta. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment or ridge constructed across stoping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinantly hat or undutating, bordening a river, a take, or the sea.

Texture, soit. The relative proportions of sand silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay silty clay and clay. The sand, loamy sand, and sandy loam classes may be further distance by specifying coarse—fine, for fivery

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

- Tilth, soil. The physical condition of the soil as related to thage, seedbed preparation, seeding emergence, and root penetration.
- Toe slope. The outermost inclined surface at the base of a hill, part of a foot slope.
- Topsoil. The upper part of the sor, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust
- Unatable fill (in tables). Risk of caving or sloughing on banks of fill material.
- Upland (geology) Land at a higher elevation, in general than the a luvial plain or stream terrace, land above the lowlands along streams.
- Valley fill. In gradiated regions, material deposited in stream valleys by gladial melt water in nongladiated regions alluvium deposited by heavily foaded streams.
- Variant, soil. A son having properties sufficiently different from those of other known soils to justify a

- new series name, but occurring in such a limited geographic area that creation of a new series is not justified.
- Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material
- Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.
- Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis at which a plant (specifically sunflower) wills so much that it does not recover when placed in a humid tark chamber.

Tables

FRECTIFIED THE RANGE AND PROBLEMANT NEW AND THE PROPERTY OF TH

			Že:	sperature				P	recipita	tion	
			-		ara in 1 have			2 years	In 18		
м ·	-			10 411	Y MARKED	Average	,	-444	1010	1 1	v · Pepp 6
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	7			para-	1015-4	Units	In	In	In		In
January	44.7	23,2 }	34.4	63	4	51	.46	.04	.77	1	2.7
b	7141	- > > -	3.11	* 4			1				
Marahamman	55.8	31.6	43.7	77	16	162	.11	.04	-,52	1	3.0
Λ 1	63.7	38.1	50.9	85	25	312	.32	.00	-53	1	0.5
м	73.4	45,8	60.1	91	30	623	,5h	-112	,88	5	3,2
	82,6	54.9	68,6	100	37	864	.46	.05	J77 (2	0.0
	92.9 [63.1	78.0	101	50	1,178	.24	.00	-43 (_	Ö.u
	90.9 1	61.0	76.0	102	111	1,110	.10	.00	.72	3.	0.0
	81.6	52.2	66.9	96	38	807	.28	400	752	1	0.0
Novembersesi	55.2	34.6	43.4	74	16	1 150	- 45	-,01	-73	1	1 0.4
December	45.9	24.2	35.1	62	5	45	.38	.04	.64	1	1.9
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			Nec	orded in th	le.						
	lı .										
February	52.2 (22.0	37.1	71	3	44	1.29	.16	2.11	2	4.6
٧	(24.8	40.4	76		100	1.05	.28	1,70	3	1.9
ħ	e t	28.3	45.2	93	13	500	.49	.07	.81	2	2.3
ð ,	1				1			1			1
	4	u	1	39	1 30	681	.66	.09	[1,10]	2	0.0
	- 1	49.3	69.9	101	36	927	.63	160	1.11	1	0.0
August	89.3	47.3	68.3	99	33	877	455	.00	-96 (2	0.0
Septémber-	81 2 [39.4	60.4	95	22	612	-40	.01	.57	1	0.0
October	70.0	30.5	50.3	68	13	319	,42	.00	-73	1	0.0
November	56.7	23.4	40.1	75	5	72	1.07	.22	1.75	3	2.0
December	48.9	19.2	33.5	67	-5	1.0	1.09	-31	1,70	3	3.8
Year	57.4	31.8	49.6	101	-12	4,319	10.12	7.30	12.95	25	4

See footnote at end of table

TAP F 1.--THEFFTA HE AN PR T. F. TAT.Ob--Continued .Recorded in the period 1951-75 at Terington, Nev.]

			Te	mperature			† Presipitation					
			T	2 years in 10 will have			1	T2 years	s in 10		Ţ	
Month	datey	Average (daily minimum)	dutly	Maximum temperature higher	ine(temperature) brance		1	Leas	None	(Ոստոհ ո ր Ծ.	htanowfait	
January	47,3	18.2	32.8	69	-6	46	.60	.19	-92	2	1	2.6
Poterun ry	53.5	22.0	37.7	73	4	73	-53	.05	.48	á.	ļ	5.3
March	59.1	25,7	42.4	75		127	-35	.36	.58	1		2.1
April	65,0	31.0	48.5	24	15	272	-37	.06	.64	1		u , A
ч у												
	Bh,g	16,1	95.1	100	31	753	.61	.11	4.00	2		0.0
	92.7	52.0	72.8	105	36	1,204	-31	.04	.52	1	1	0.0
August	90.0	18.7	69.8	101	35	924	-35	.00	.66	1		0.0
October	71.2	32.0	51.6	8.9	14	165	- 24	.00	154	1	1	0.3
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· In												
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In growing degree day is an index of the abount of nest available for plant growth. It can be called attending the maximum and minimum daily - peratures, fixiling the sim by 2, and subtracting the temperature below which growth is minimum for the principal crops in the area 51° P.

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ì	November	5 1	Stater	25	i Getaber	6		
ear ter there- 1	November	13	hovesber	3	1 Jolober 1 Jolober	18		
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uset freezing temperature in spring.					1			
l year in 10]	June	2.5	Jaly	1	j Jary	3v		
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	August	16	Annath	5	Jara	10		
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Lyon County Area, Nevada 251

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TABLE 4. -ATTIME AND SER POSITIONED EXTENT OF THE SOLES OF INCOMES

Map symbol	Soil name	Acres	Percer
892 893 911 921	Herit-Shoken association, moderately steep	1,741 5,049 1,049 1,741	1
923 932	Shokan-Mock outcrop association	2,638	
971 972 982 982 991 1701 1002	Minneha-Drit-Rock outcrop association	35 W 20,146 6,857 13,961 511 3,578 1,780	1 - "
.012 .014 .014 .001	Shedley stony sendy loss, & to 8 percent slopes	5,176 1,544 11,413 1,356	
.n41 1051 1072 1073	Whichhard-later-Rock out rep association	12,200 2,658 356 2,768	4
1075 .081 .082 1083 1091 .103	Sticky extremely cobbly sandy loss, 5 to 15 percent &lopes	762 1.785 915 697 2.496 2.75.	1
121 131 141 1142	Dunce-toperac medociations—— dunged graverry sand, 2 to 15 percent elopes————————————————————————————————————	2,556 5,662 314	

[·] Less than G.: percent.

TAKES 5.--YEAL & PER ADRE OF CRIPS AND PASTURE

[Yields are those that can be expected under a high level of waragement. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil. Only the soils suited to crops and pasture are listed.]

Soil name and	1.14 2	3	4 =			i	Iris
	7				-	w	rd.
•	5 1	8 (65	75	450 /	13G	3
r p y	5		65	75	450	130	3
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See footnote at end of table.

E 5.

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at F			I	-	73	500	100	4000
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	*********		2		73	500	100	
et P	k		4	\$30	1.25	500	100	1 100
unt P	k		1	4-0-0	73	500	100	
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1.or				6.5	40	350		1 480
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ybou					63	49.40-40.		
1000	-hotspri -			70	70	350	80	350
1. 35 tspr				70	70	350	80	350
F 1					57			
				58	72			
3				65	75	450	130	350
3				65	75	450	150	350
E Lan. M			-	Bo	90	400	90	400
li — ——————————————————————————————————					1.0			
4 d d d d d d d d d				30	125			

See footnote at end of table.

TABLE 5. - YIELDS PER ASSE OF 3 DRS AND PASTURE--Continued rothattos 4 45 ц ц п $\eta_{j}:$ M so Track 621, 623-----Sarologui A25_____ Secalogui b26----Sarakegul Saraleg i Variant 11 2 1) Т Ф 5 г 5 г Totan-Terington 72.----Assidaka

See Postnote at end of table.

TABLE 50--YORLDS PRE ATRE OF IPPS AND PASTIFE--Continued

ৰিল — শুৰু প্ৰতাপী নুখান	, -	Pasture	Whest	Barsey	Onions	Garlic	Irish potatoe:
		Y.M.	Bu	2-	Sank	Cvrt	Cwt
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(64seessoossssoossoossoo) Yerington	h.	ė į	55	65	410	110]] 300
65. 766	5	9	58	70	440	120) 320
67	1	8	55	65	410	110	300
074	5	6	58	62	420		320

^{*} Animal-unit-month. The abount of forage or feed required to fived one asimal unit (one cow, one horse, one mule, five chaep, or five goats for 30 day

TABLE 6.--BANKSAN, PRINT INTO ANY ALBERTARY .: PANTINES NITLES

Finally the solid that support range, and vegetation filiable for drawing are listed. The range wire range loguides the precipitation form, abtreviated pur. It is followed by a numerical designation that implies the Major Land Resource treading to

So, name and map symbo.	Farge site na e	Wint of year	T		Compo- striar
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	1	Alexandria.	1 1,000	ngsin willtypenness recling w. invesses	
Mily Tähd	·· time Mo*te, A-A* g.z.	fev rat e	1		
Applement	Sodia Terrade, 8-107 p.c.	51. 41. 4		5	
W.F. W.L.	26-12	Normal Sormal		paste dig sagebrush	
		<u> </u>	1	spiny hopsage	1 .0 5 5
De-b	- Sodio wares, 4-5° p.s. 27-15	Paromatie Mordai	1 363	Выал К Izлеабемора	50
	1) (1	herisehil real Fourword sal bushess	
	- [GraveTly Loam, 1-5° gus.	Trau prable			
<u> Вълдо</u>	1 5	The surrect were t	1 207	Patricipal squirreltari Patricipal greases od Lud sagetrust.	1 .

Res footrote as end or table.

TABLE 6. - RANGELAND PRODUCT, TOTAL CHARACTER, SIZE PLANT COMMUNITIES -- Continue!

		rel production			71
wab shappr	native sale nese	Kind of year	0 ey		altic
r, Rinking Variabs	South Terrain, 4-37 p.s. 27-24	Par mable Somest Smile make	1	Staderale no de la company de	- 20 10 - 5
,		A 4	470	The product of the twister of the street of	5 5
F sowiese	27-18	Normal 'ASAVOTED.#	170	(1 glg a, decension and a commence of the state of the st	- 1d
	27-18	Pazzektus Norma Inflavorstus N	2.0	Indias Floaghtidess consensual and the granuous descension of the granuous descension of the granuous descension of the granuous and a granuous descension of the granuous descension o	2' 1
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Q Q RF 30 € 40 to 10 mm m m m m m m m m m m m m m m m m m	Annuay = Assis Pass	AFRICADLO	820	Manufata bruse	1
M FA 15 DEMONAS	Rough Stage, 5-12* p.s.	Favorab.e	1 =		
u zwi≡	1	-misyonable		Ayoning big skynbruit	5 5 5 5 5 5
15 to 30 percent	South Slope, 9-12" p.2.	(Pavorable	9 %	Jesert Serllegessen	
Raopes1		i antavorable	620	dycaing big eage fustances bott, ebrush squirreitais	3 5 5
			1	Douglas rabbitbrash	5
201	- tandy, 4-8" p.s. 2"-9	(Yomal infavorable	. !		
		-			
	1	, infavorable	100	Pad sagebridb	1i

See Toothote at end of table

TABLE 6.- HANGELAND PR . Tivits ANT THIRITER OF PRINCE OF THEST COMMING TIPS-CONTINUED

Soll name and map symbol	Range wite mame	(Kind of year	Ony weight	Charmoteristic vegeta ion	Sompo- laitaon
204, 205, 207 Cleaver	Traye, y wome, 6-6" p.z. .27-181	Wavorable	44 2		
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i to 15 parrant h to 15 parrant		Pay reste Seems.	1		
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ч ,	Stab	Farzest -			
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73 #	ures, t-dr p.s.	7347F2F* 3			
	p has here	S. mag.		THE SOURCE	

TABLE 6.--RANGELAND REUDICTIVITY AND CHARATTERIST. FLANT TOWN THIRLES--Continued

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Soll name and map symbol	Range site name	(Eind of year	Comp
7 - W			
74. #863	- Sodie Terrace, 4-8" p.z. 27-24	Favorable Domás	319 tarminations 35 150 Filera gressewood
			Poursing sa, Shashaannan
	Sodie Dunes, 4-8" p.c. 77%6	Fevorable (Normal) (Chromab)	and (Indian ringrass
,	Cinypan, 10-12" p.z. (26-21	== Flyorable 	3 0 % a nagabrush
	1	1	Thoughe raubitomananeeree 5
ook on rip.			
74. *	-17inypnn, 102" p.s. /24-23	Par mabad	(5 / Thurbon hor, egranden 25
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Nack storops			
ost, Islaminoseen in	- Moint Floodplain, 4-8" p.s.	1 go tare a	3, v0 (irreping wildrymanness 30 2,500 (Whath Wildrymanness 5 2,00
			*
	Wet Mestow, 4-8" p.r. 2"-4	Pavora5.c	
		1,297,34,3274	Nekada bilegrasa- Meadow barley
•	ealwet Meadow, 4-8" p.s. 27-4	to Farorable to Farorable	2,500 tSe1gerranananananananananananananananananana
D1 thodana	. Wet Meadow, 4-8" p.z. 27-	Pavorable	2,5,0,0 3,63,80000000000000000000000000000000000
3 0			12,130 Tifted hairgreas - 1 Tanana 12 Teveda Binegrassana - 1 Teadow barley - 1 Lipite thothy
		+	4.pine timothy***
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loum, amlinu- nicali	- wet Sodie Barton, 4-8° p.s. (2°-5)	(Pavorat s Norman Lunimannet!		
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Qbanion	ket Meadow, 4-8" p.s. 27-8	favorable (%) rmal unfavorable	1 2.512 1 1.52 1 1.73	Nevada blungcaps	1 10
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TABLE 6. HANGELAND PR With W AND THANK THE S IN PLANT DESIGNATION -- CONTINUED

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TABLE 6 -- TAX FLANT ME. TIV. TO AN. TEX-ATT-9. TIT PLANT - MM N. ISAS--Continued

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	Dunes, 4-6° p.x. 27-23	Fa orable Normal	1 31 1 200 1 30v		
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		Unfavorable	1 100	Reedlesadonread	1 ₀ 5
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TABLE 6. -- HANDELAND REVIEW IN THE AND CHARACTER STOC PLANT COMMINITIES -- John Character Stock Plant Comming Comming

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	6-2= p.c.	Payorable Normal Prayorable	30.0	t symming big magebruah i fing h hosge iintian escogname lument meriterm	
	n , 8-12" p.m. 26-34	Pavorable 5 ma. Juniavorable		Asoin willingsomment of the same of the sa	30
7011 Veta	Draughty Loam, 6-R* p.c. 1 26-28	tPavocatie Norma. Funfavocatie	1 400	Vyoning big sagebrush	
	dravelly Loan, A-6" p.z. (27-18	Favorable borda Juntavorable		The Terminate the Control of the C	5 5 5 5
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Lyon County Area Nevada 351

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Lyon County Area Nevada 429

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456 Survey

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Lyon County Area, Nevada 457

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460 Soil Survey

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462 Soll Survey

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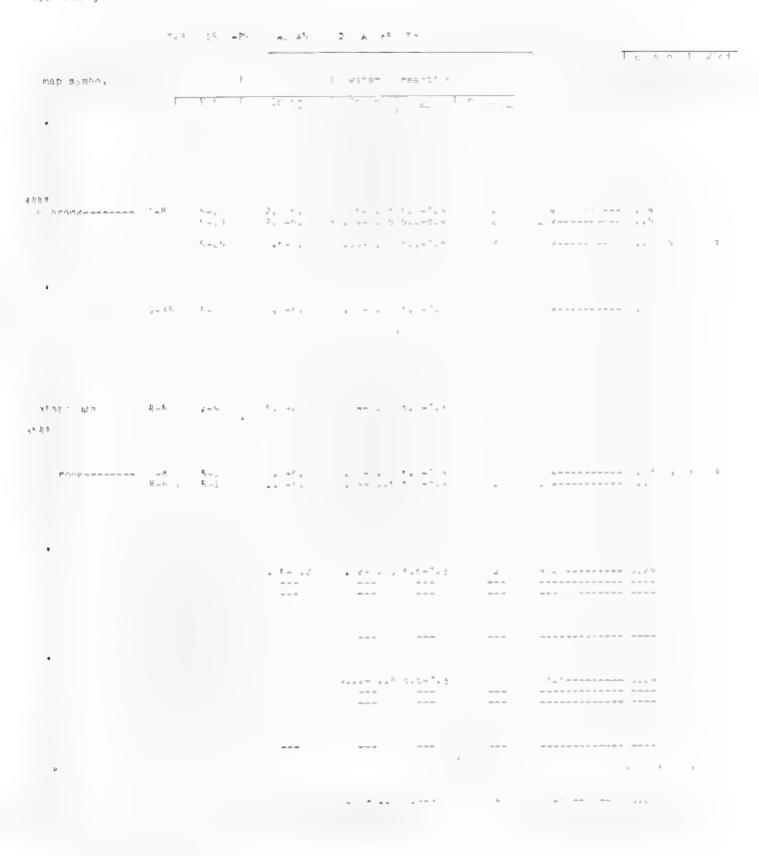
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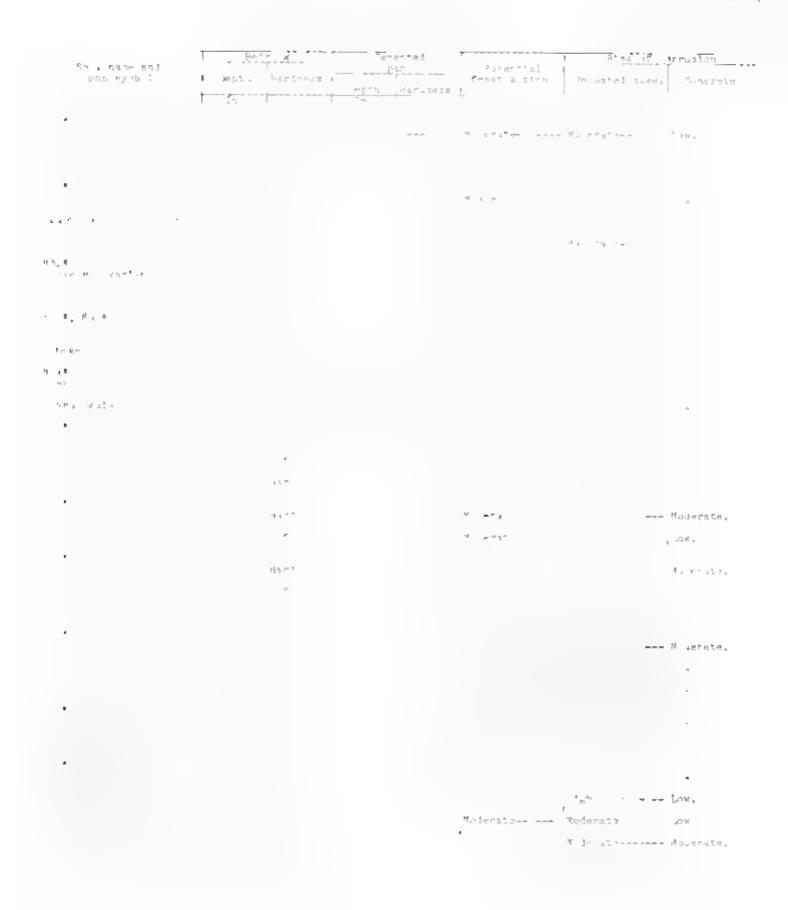
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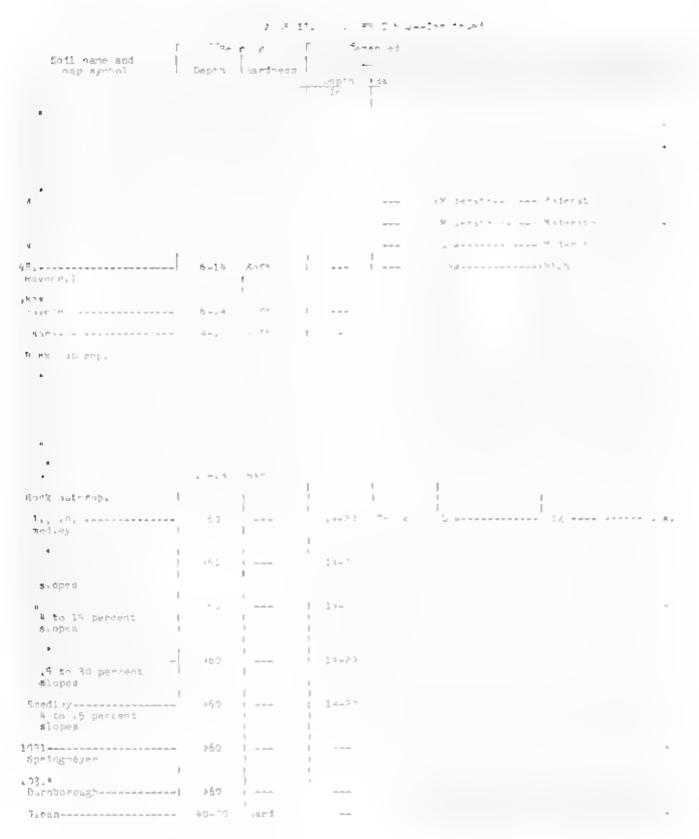
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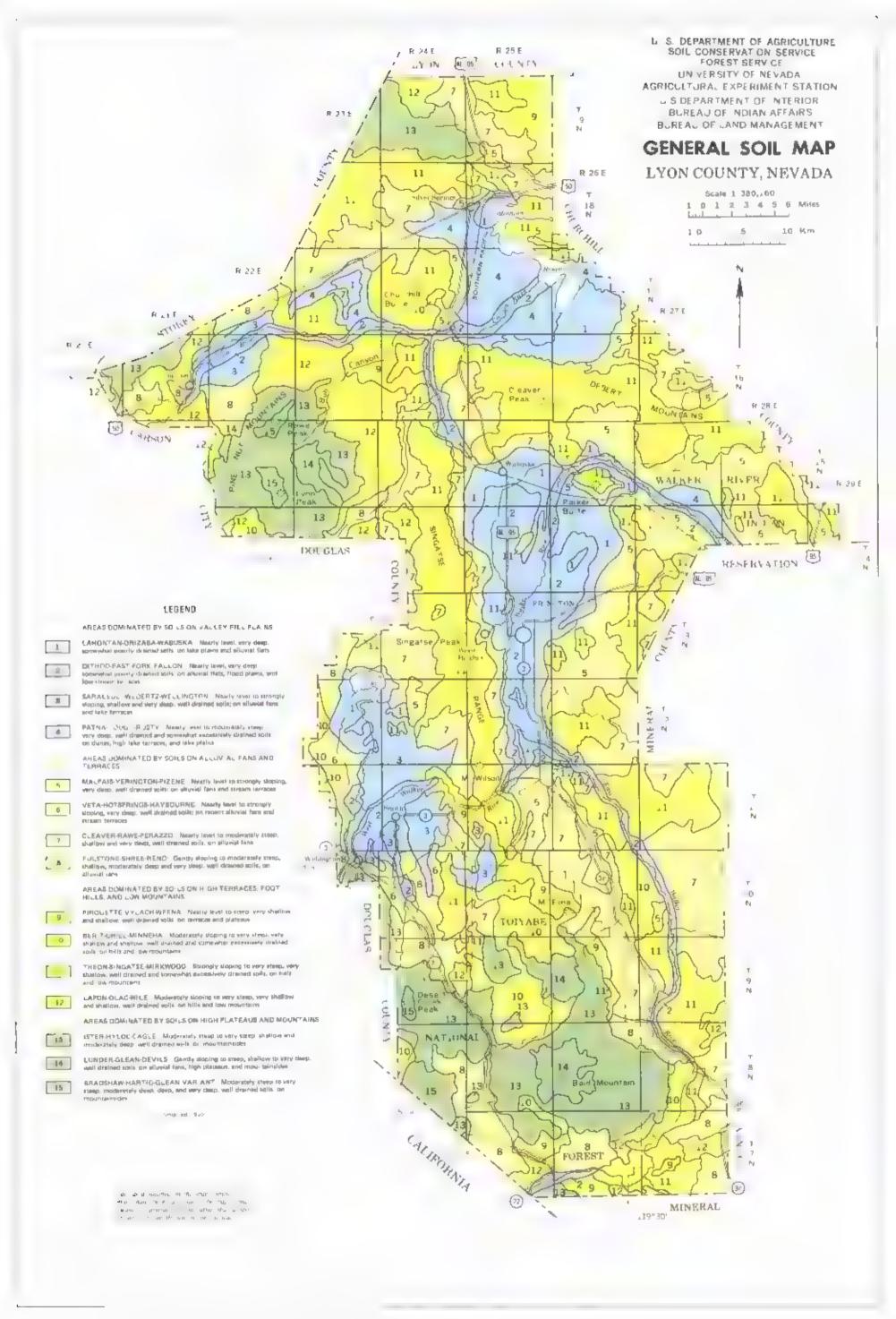
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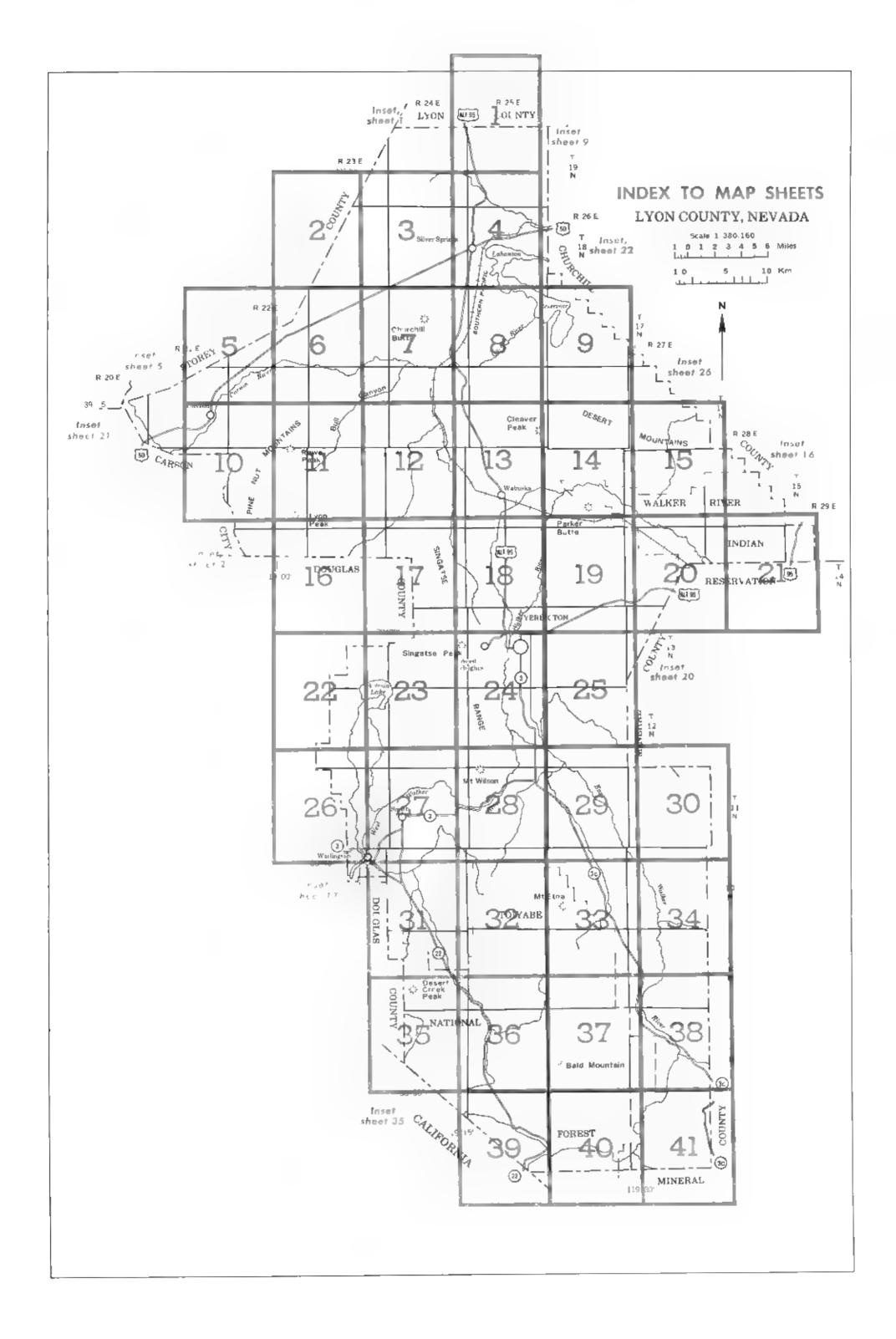
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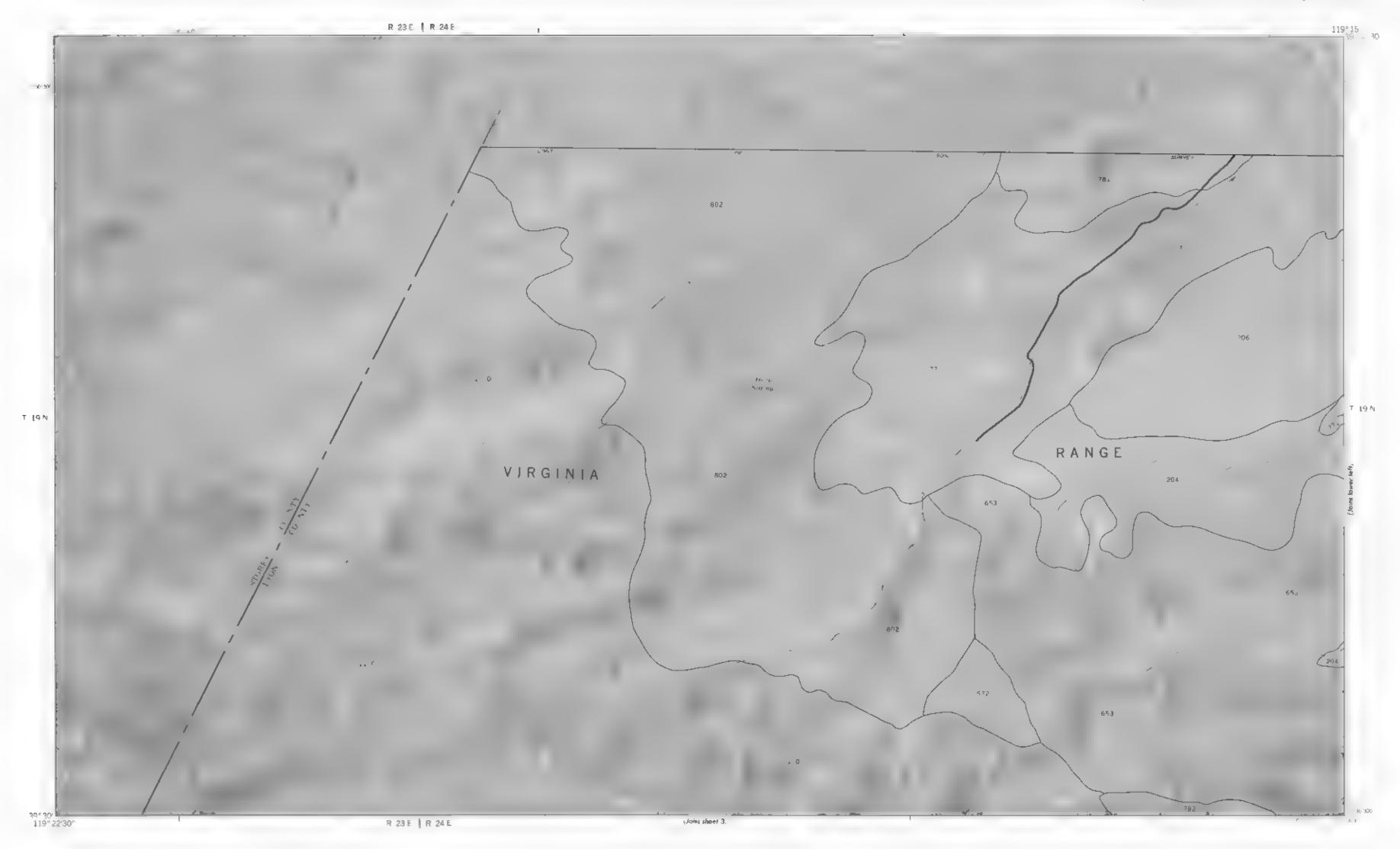
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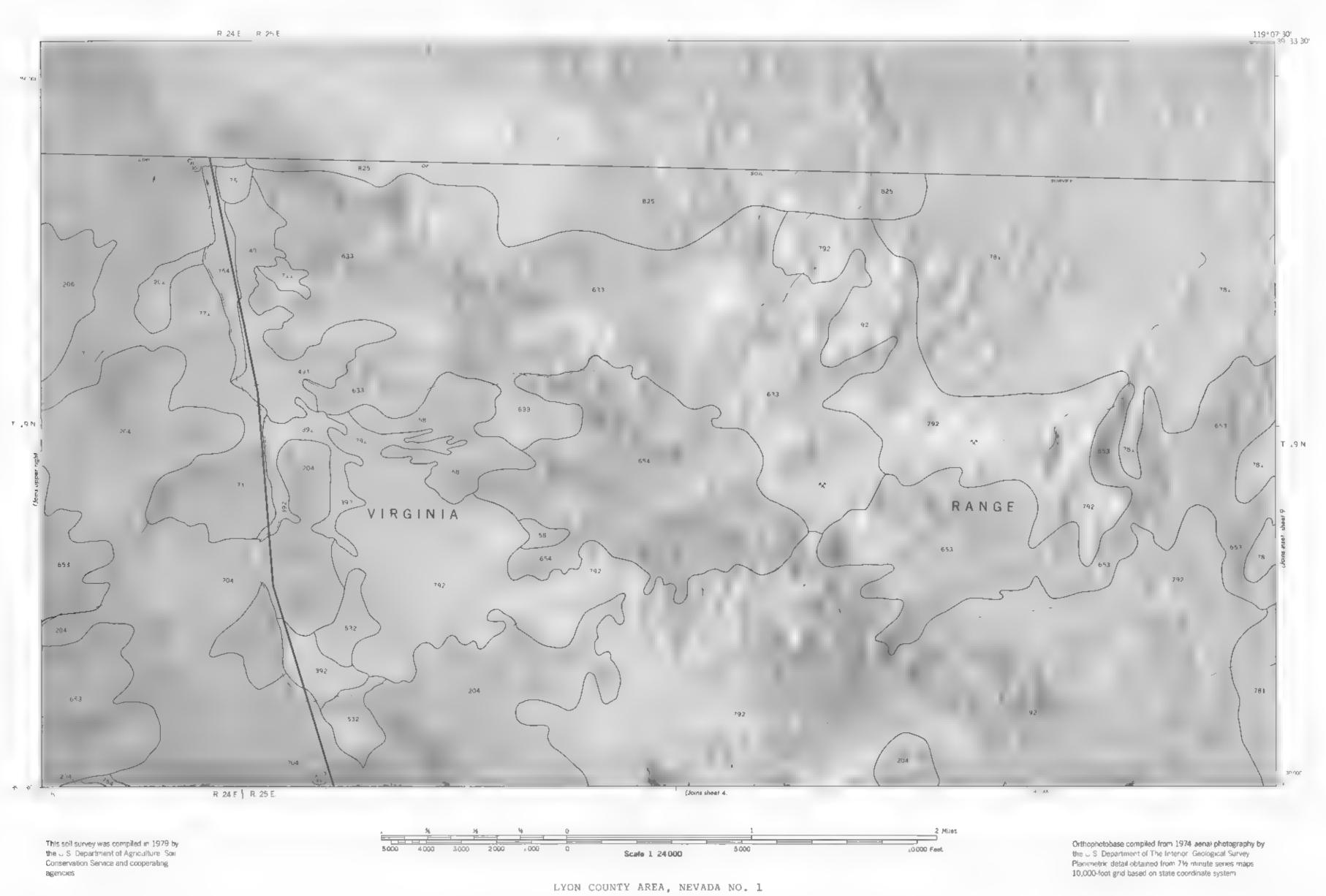
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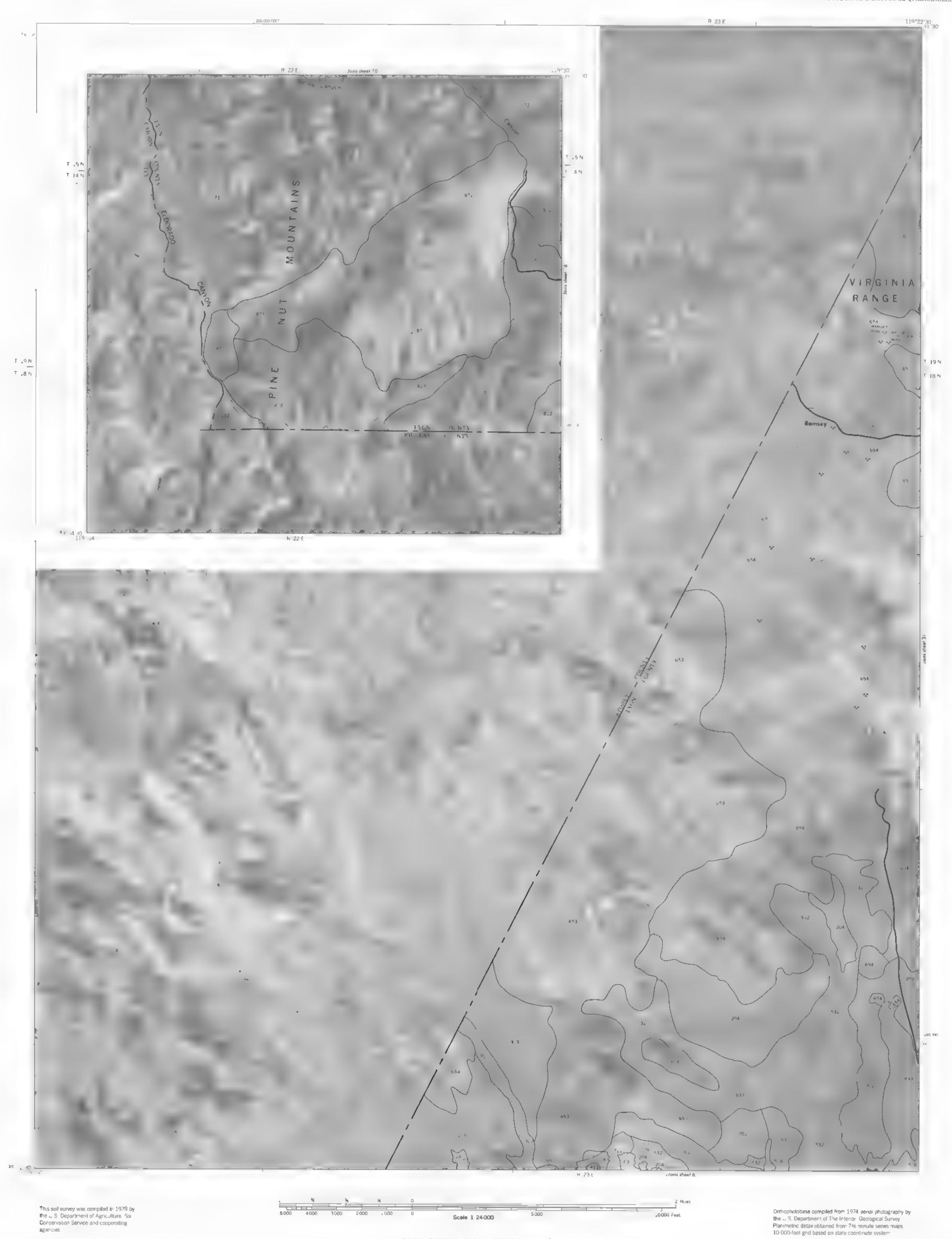
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*Map units are nerrowly defined. Map units without the asterisk are broadly defined.

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	Ackley-Ackley Variant complex*		Obaction sampy State intramed*	74.	Wederta-Weitington-Sarategui complex iO to 2 percent stopes"
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	Appun-Delp complex 0 to 15 percent slopes*		Olac-Ister-Rock outcrop association	746	Wellser, Wedfur association
	Bango sandy town		Oppio-Nosrec association	754	Malparse gravelly loamly sand, 2 to 8 percent slopes
	Bango yeny gravelly ksemy send*		Orizabe sandy foam*	753	Malpaca cobbby sandy loam. 2 to 4 percent slopes*
	Bluewing Variant clay 2 to 8 percent slopes*		Orizaba Ipans strongly saline alkali*	754	Maripara complex, 2 to E5 percent slopes
.61	Bluewing very gravely sand, 2 to 8 percent slopes*	483	Orizaba logne, drained*	755	Marpara-Yerington complex, 4 to 8 percent alopes*
	Bluewing very stony toarry sand, 2 to 8 percent slopes*	484	Origaba sifty clay loam*	761	Verington loamy time sand. D to 2 percent slopes*
	Cagle-Nosrac association		Oneaba-Delp association	762	Yerington learny time sand. 2 to 4 percent slopes*
	Charlebois loam 0 to 2 percent slopes*		Otomo gravetly sandy loam: 4 to 15 percent slopes	763	Verington toansy time sand 4 to 8 percent stopes*
	Charlebots town, 2 to 4 percent slopes*		Parken sitty clay room*	764 765	Verington formy time sand. 8 to 15 percent stopes*
184	Charbibois gravelly loam: O to 2 percent slopes*		Palna line sand, 4 to 45 percent slopes	765	Yerington gravetly sandy loam 10 to 2 percent slopes* Yerington gravetly sandy loam 12 to 4 percent slopes*
.85	Charlebors sandy loans. 0 to 2 percent slopes*		Palna tine sand, 45 to 30 percent slopes*	767	Yerington gravelly sandy foam 4 to 8 percent slopes*
.91	Chill association		Palma loamy sand, silly substratum. O to 2 percent sloogs*	771	Biddleman association
201	Cleaver bowny line sand, 2 to 8 percent slopes*		Patna sand 0 to 4 percent slopes	781	Caletan vary cobbty sandy loam. 8 to 30 percent slopes
202	Cleaver graviety sandy foam. 2 to 4 percent slopes		Patna-Hough-Playes association	782	Weens-Maipers association
204	Chayrer stony sandy loam. 4 to ±5 percent slopes*		Patna sandy spam, occasionally flooded, II to 2 percent slopes"	791	Flex Duco association
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	Cleaver association, moderately steep		Prese team 0 to 2 percent slopes*	803	Loomer association
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	Delp-Origabe complex 0 to 15 percent slopes		Pigrazzo very stony sandy loem 4 to 8 percent stopes*	622	Dumps ming
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	Dur-Dithod complex, ponded*	572	Reno cobbly sendy loam. 4 to 15 percent stopes"	64,	Bradshaw-Martig association
	Du-Sagouson complex*	581	Risus extramely stony loam. B to 15 percent slopes	65.	Tenpin-Shree association
	Dithod lgam"	582	Risue gravelly loam. O to 8 percent slopes	86'.	Shree very gravelly loam, 4 to 8 percent slopes*
	Diffied loans, clay substratum*	591	Rose Creek loam*	871	NaZ-capping-Motsprings absorbation
	Dithod day kare wet"	601	Rusty sand: 0 to 2 percent slopes*	887	Ravenell Yariant-Qevils Variant association
	Digged loans salms-alkali*	603	Rusty-Isolde complex, 0 to 15 bercent viopes*	69.	Berri-Shokun association, moderately steep
	Dithod clay loam*	604	Resty-Playes complex. 0 to 2 percent slopes*	692	Berit-Shoken association, steep
	Orthod clay learn, wet, soline-ofkeli*	6.1	Sagouspe sandy loars*	693	Berit-Sarabegus association
	Dithod-Sagouage-Die complex*	6.3	Sagouspe sandy loam, saline-elikali*	91.	Fulatone Variant-Devils-Glean association
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274	East Fork clay loans*	623	Saralegus loamy sand. 4 to 8 percent 90965*	923 932	Glash-Tiorno-Hartig association Shoken Rock outcrop association
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	East Fork gravelly clay toom*	627	Saralegui Varient Memy send"	971	Minnette-Ont-Rock cuterop association
	Fallon sand*	531	Singates very gravelly sandy loam, 8 to 15 percent slopes*	972	Minnera-Bent-Wife association
	Fallon fine sandy loam*	632	Singetee-Rock outcrop complex 30 to 75 percent slopes Sinsatse Theories association	981	Revenell very gravelly loam. B to 30 percent slopes
	Fallon fine sandy loam. Inequently Booded*	693	Tocan sandy loam 0 to 2 perceM slopes"	962	Ravenell-Hear-Rock outcrop association
	Fallon fine sandy loam galine-alkali*	64. 642	Total sandy foam 2 to 4 percent slopes*	991	Rolec-Diret association
	Fallon sandy loam ponded"	643	Tocan grayetly sandy loam. 4 to 8 percent slopes*	1001	Rowel very cobbly sandy loam. 8 to 30 percent slopes
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31.	Fultrane cobbiy form, 2 to 8 percent slopes	652	Theen-Olac association	2015	Smeathey stony sandy foam, 4 to 8 percent slopes
	Fulstone cobby 'oam 8 to 15 percent slopes'	653	Theon-Lapon-Olac association	1013	Smedley association, sloping
	Fulstone association	654	Thorn-Rock puterop Old Camp complex 50 to 75 percent slopes*	1014	Smedley association, reoderately sleep
	Fulstone-Reno association Fulstone-Stucky association	655	Theon-Verington association	1021	Springmayer sandy toam 10 to 4 percent slopes
		661	Isolde has sand. 0 to 15 percent slopes	1031	Burnborough-Glean association
	Haybourne town Hocar Rock outcrup complex, 15 to 30 percent slopes eroded*	663	Isolae-Patria complex 0 to 15 percent slopes	1041	Whighingsi-Eşjer-Rock pultimóp asádólábón
	Holbrook very stony sandy loam 4 to 15 servent shakes*	663	teolde tine sand, slightly saling askali. 2 to 15 percent slopes	105 L	Zyggi very gravally sandy ktem. B to 30 percent plopes
	Hoforcook-Hotsprings complies. 2 to ±5 percent slopes*	671	Toulon gravelly loam. O to 4 percent slopes	1072	Harwshy sand, 2 to 8 percent slopes
	Hothrook-Stree association	481	Yarrington Variant loam. 2 to 4 percent slopes	1073	Harwsley-Gorngoe association
	Hofbrook Varient-Rock outcree complex 30 to 75 percent slopes	49L	Jitza gravetly fine sandy toars*	1074	Hawsley learny (Indicated, salty substratum, 0 to 2 percent slopes
	Hotsprings fearly coarse sand, 2 to 8 percent slopes."	701	Yella very gravefly sandy loam: 2 to 8 percent slopes*	1075	Hewsley-Playes complex
	Hotsprings graveby learny coarse sand, 0 to 2 percent slopes*	702	Vota very gravelly sandy loam, occasionally flooded, 2 to 4 percent slopes*	1081	Stucky extremely cobbly sandy form, 8 to 15 percent slopes*
	Hotsprings-Hofbrook complian 2 to 4 percent slopes*	704	Yella very colohy sandy loam. Bito 15 percent slopes"	1082	Stucky association
	Hough sand, 0 to 2 percent slopes*	7.1	VVIach-Weens association	1083	Stucky-Moneyell-Veta association
	Hyloc-Egier association	721	Webusks loamy sand'	1097	Glean Valuant-Hartig Variant-Rubble land association
	Hylno-Sister-Reck guitarée association	722	Wabuska toam*	1103	Mirkwood-Nartuce association
3.5	Juve gravelly set foam. O to 2 percent slopes*	723	Wabuska Joan - moderately saline-alkali*	1110	Surgem Olac Cagle association
301		724	Wabuska toam, strongly saline-alkahi	1121	Duce-Nosrac association
391 392	and a transfer and satisfy that I < 00 d become alones.	707	Wabuska Delp Playan complex 0 to 15 percent slopes*	4131	Gamggg gravetty sand, 2 to 15 perceM slopes
392	Juva gravelly fine sandy loam (2 to 4 percent slopes* Lahoyten sity clay loam, strongly salvé-alkali*	725			Ole Code Michael Names of Special
392 401	Lehonton city clay loam istrongly salvie-shall*	731	Hunewill sandy loam. 4 to 8 percent slopes*	.14.	Old Comp Minkwood-Nemico association
392 401 411		731 732	Hunewill sandy loam: 4 to \$ percent slopes* Hunewill stony loam: 8 to ±5 percent slopes*	+142	Old Comp-Helbrook Variant association
392 401	Lahorston sity clay loam, strongly salvie-allusti* Lapon extremely stony bown, 15 to 30 percent slopes*	731	Hunewill sandy loam. 4 to 8 percent slopes*		

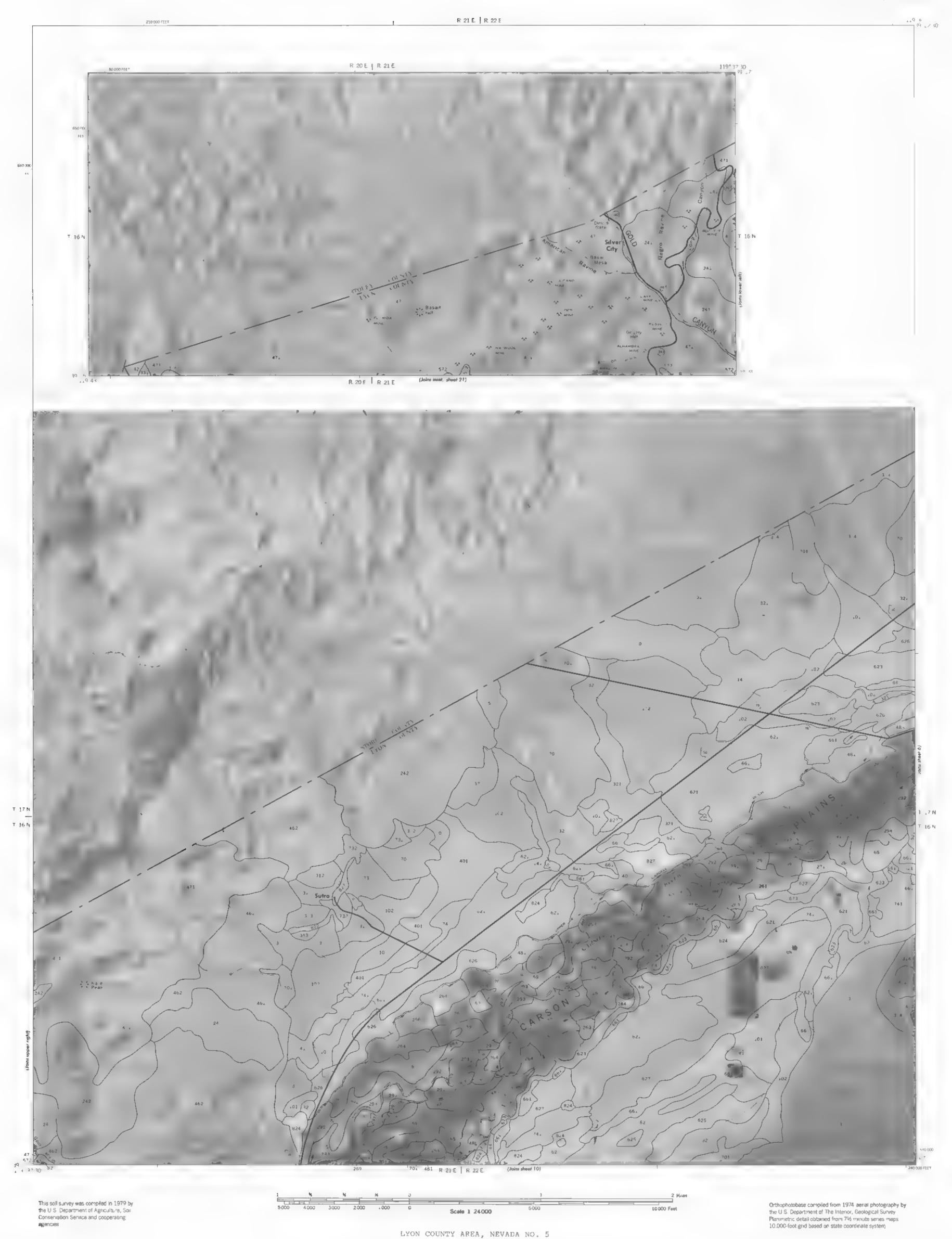




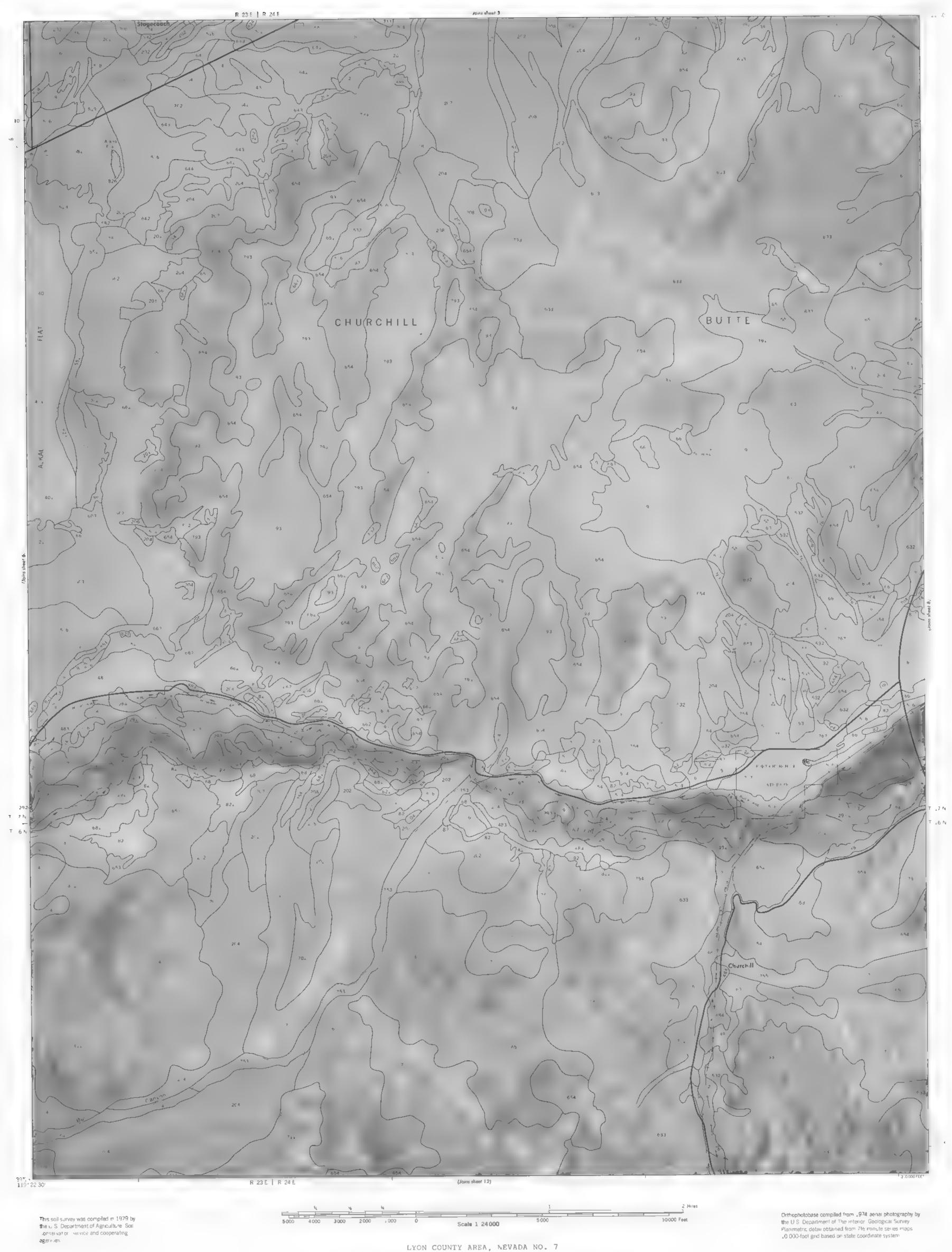




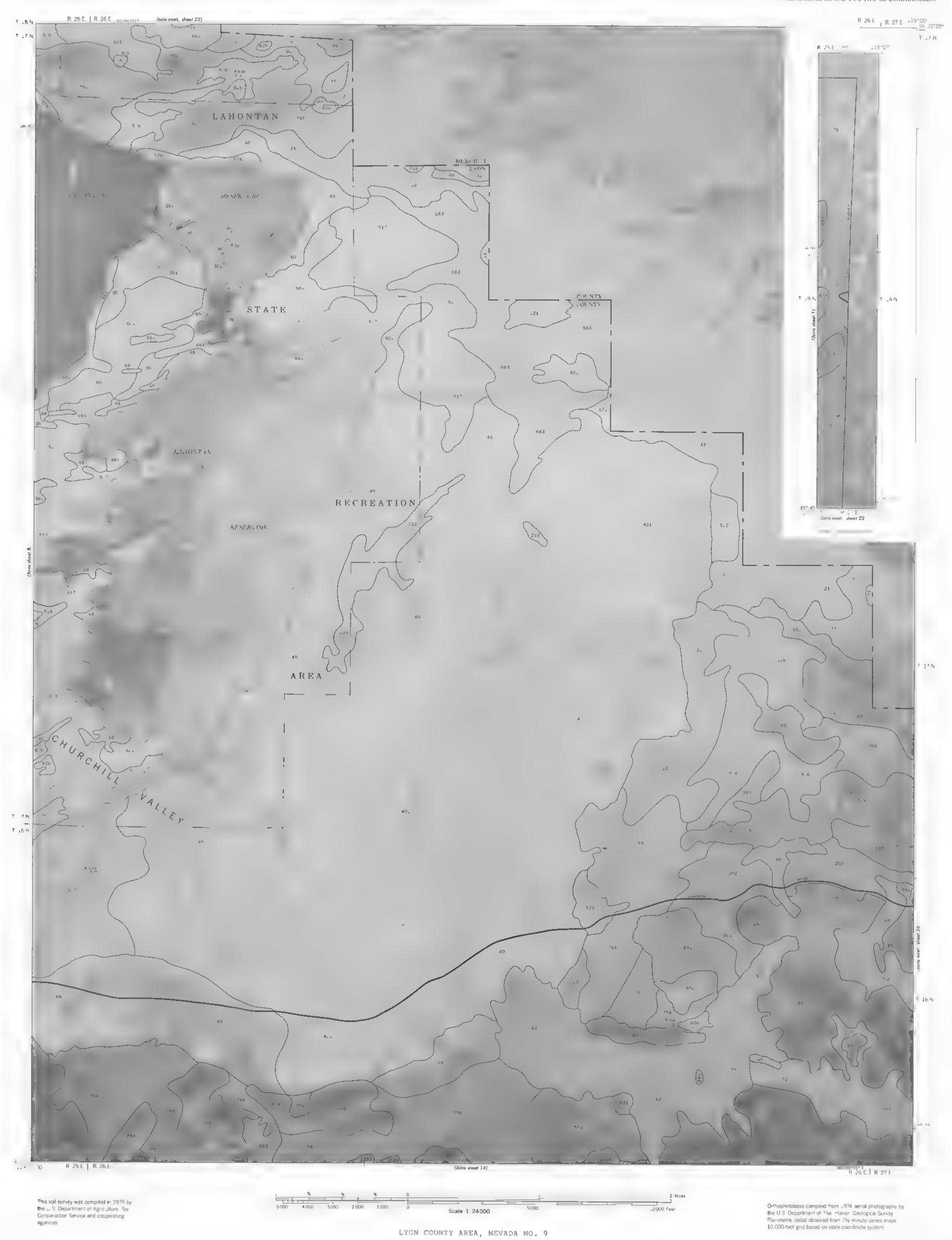


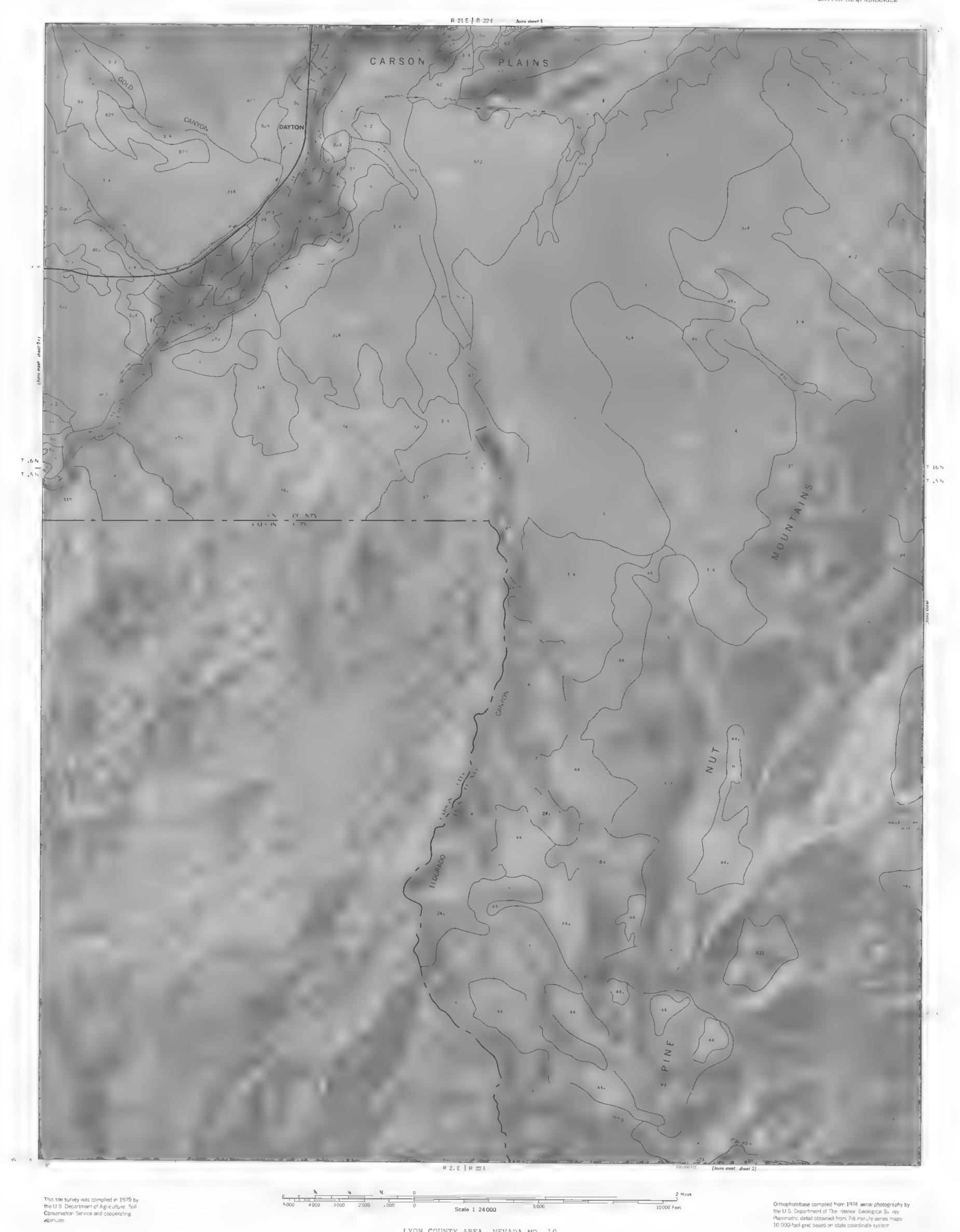




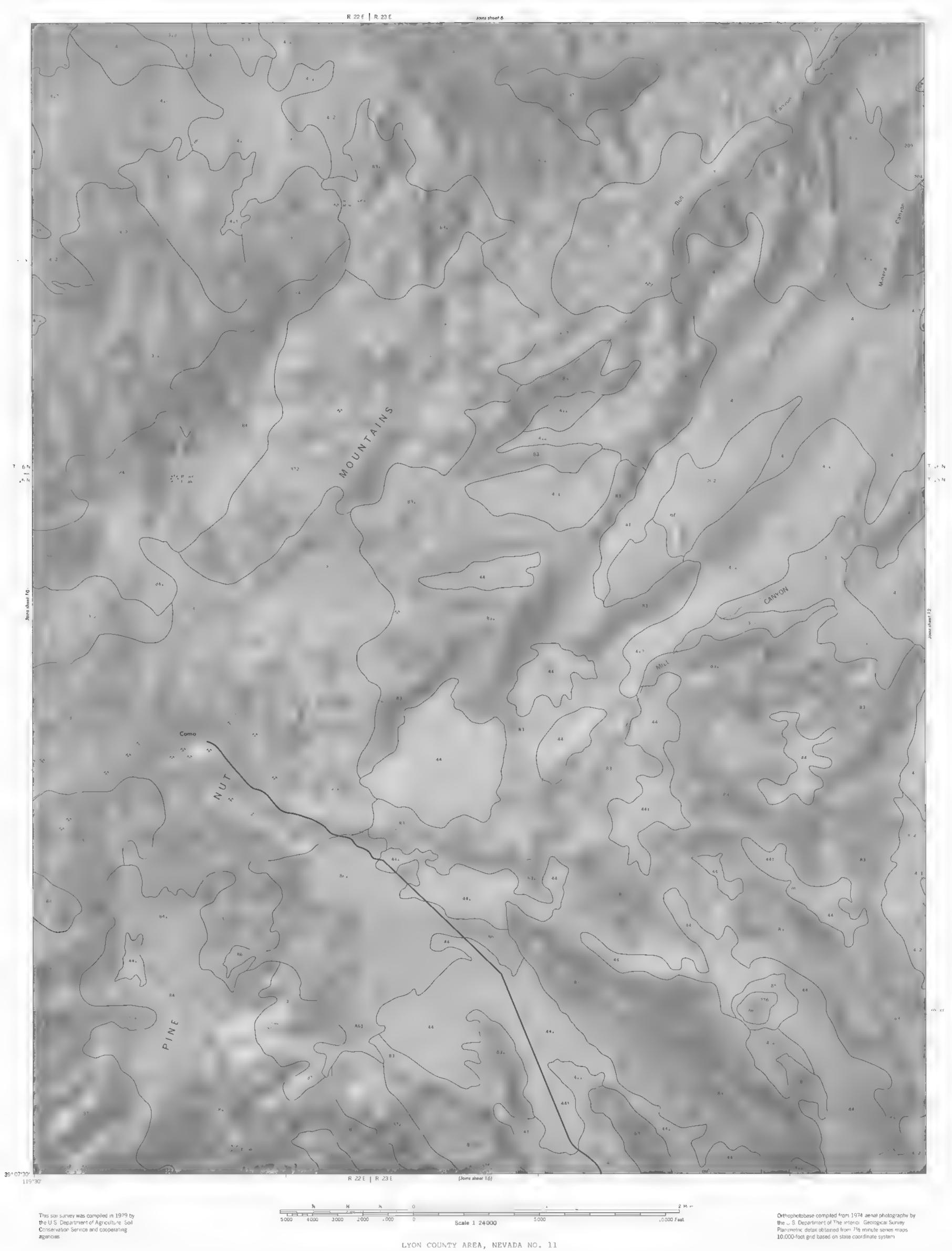




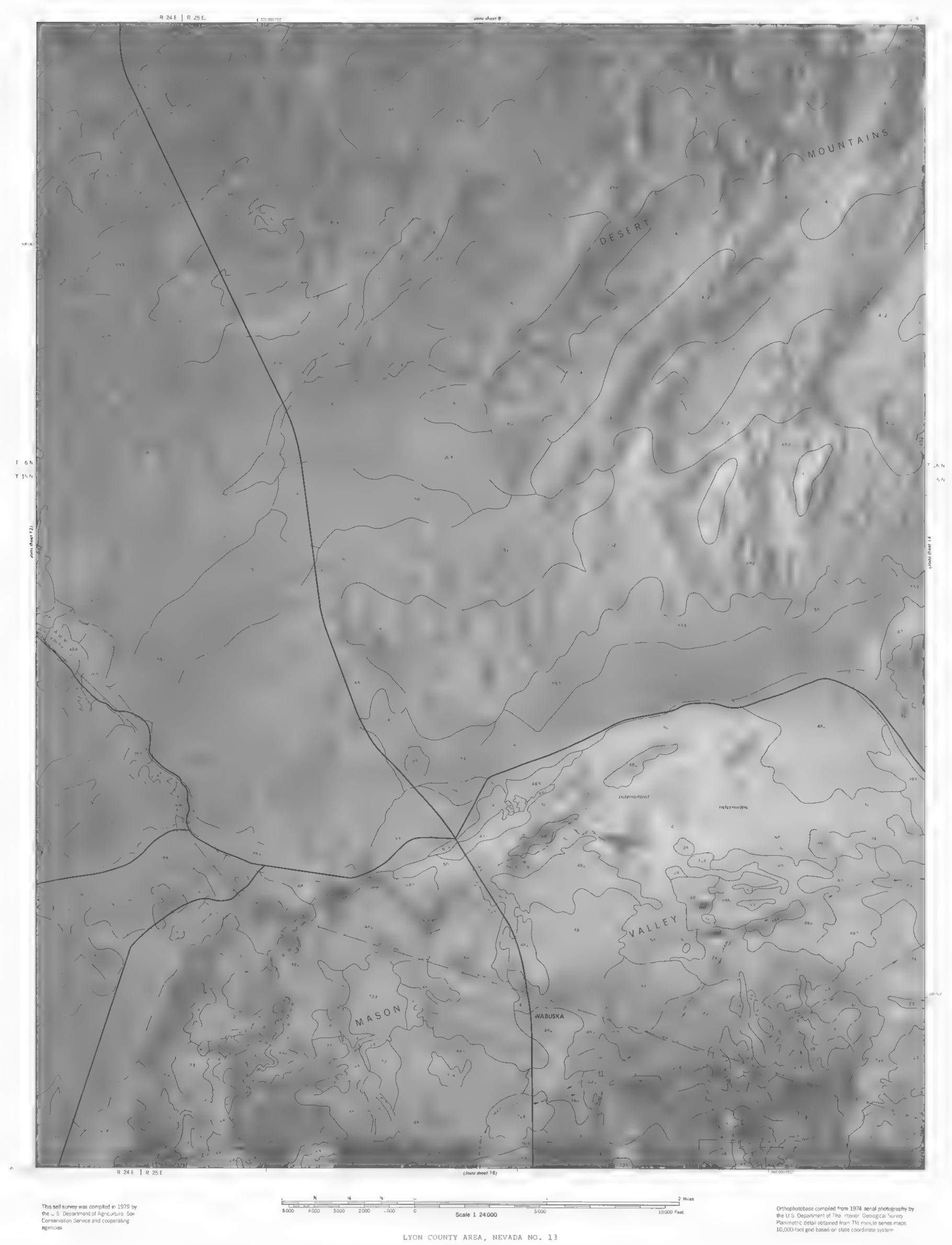


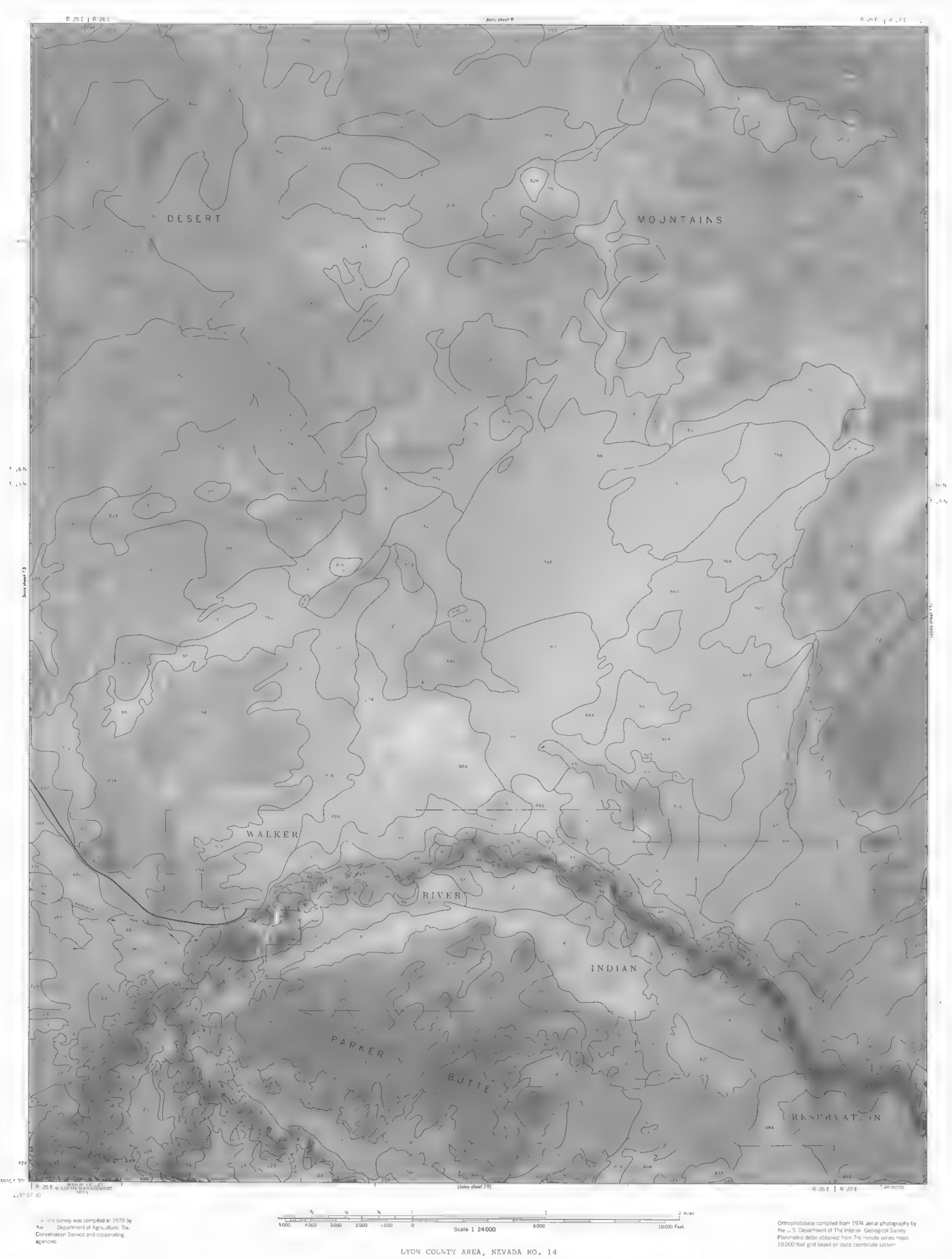


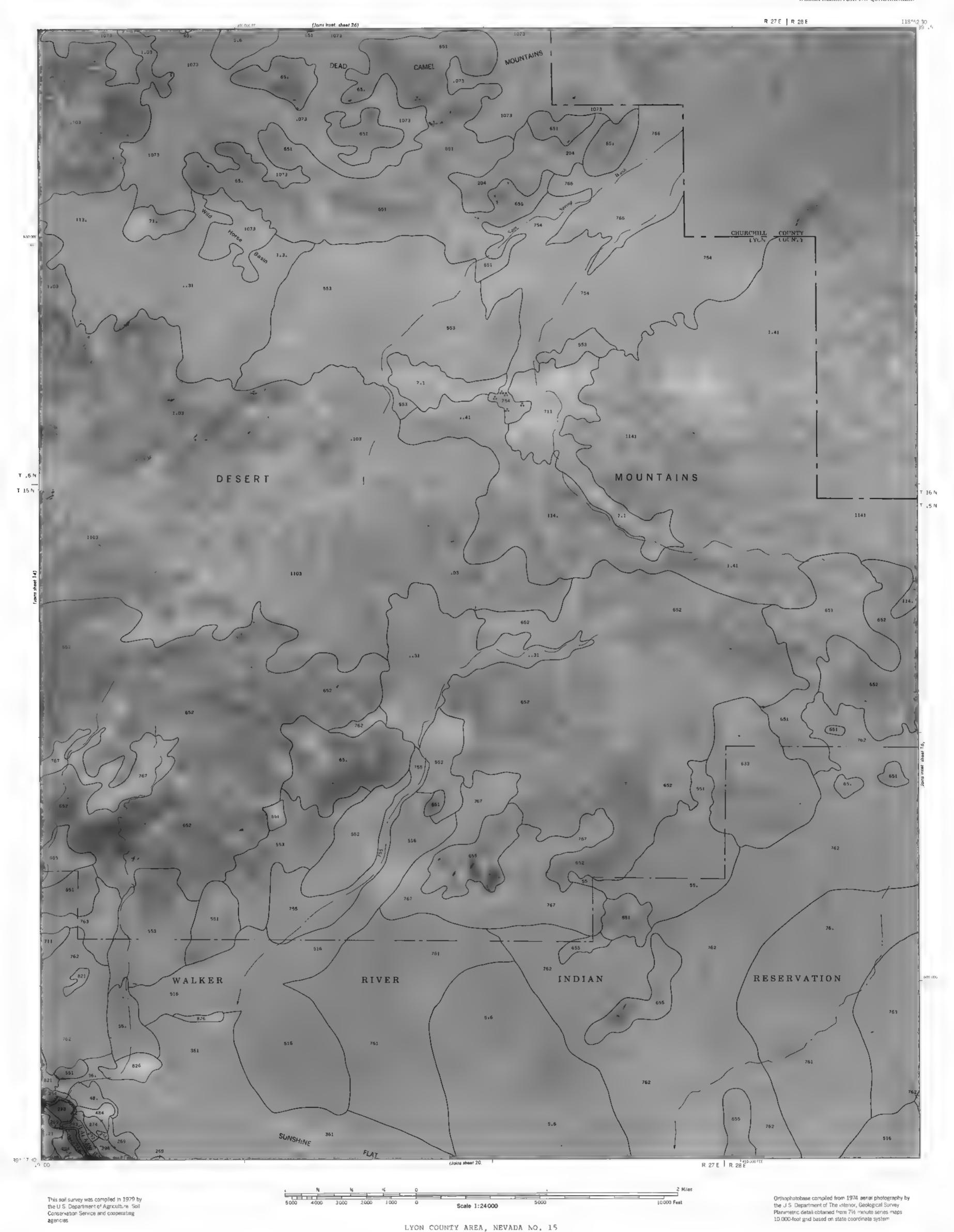
LYON COUNTY AREA, NEVADA NO. 10



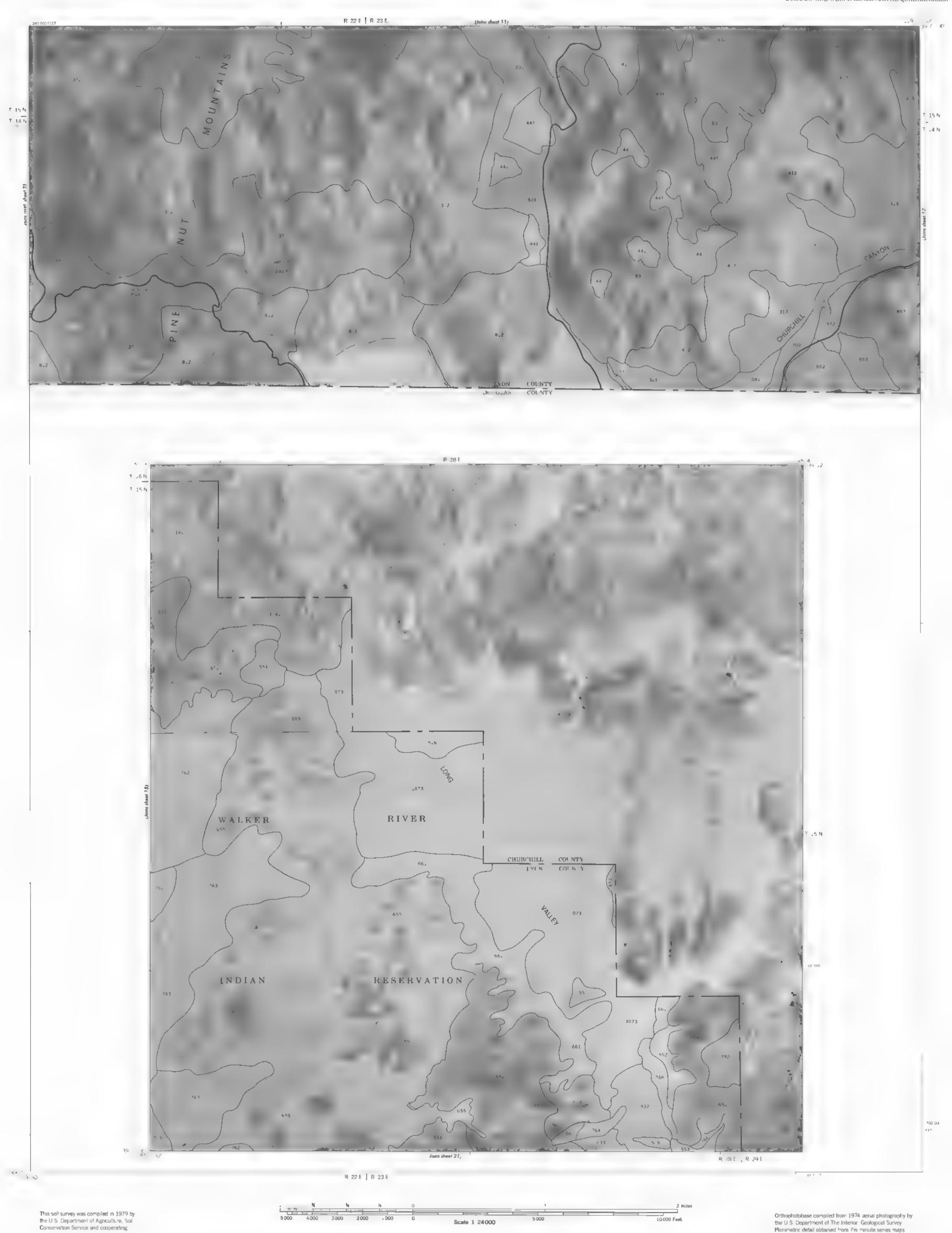








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Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior. Geological Survey Planimetric detail obtained from 7½ minute series maps ±0.000-toof grid based on state coordinate system.

